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The credibility of native and non-native speakers of English according to non-native listeners

Důvěryhodnost rodilých a nerodilých mluvčích angličtiny podle nerodilých posluchačů

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I declare that the following MA thesis is my own work for which I used only the sources and literature mentioned, and that this thesis has not been used in the course of other university studies or in order to acquire the same or another type of diploma.

Prohlašuji, že jsem diplomovou práci vypracovala samostatně, že jsem řádně citovala všechny použité prameny a literaturu a že práce nebyla využita v rámci jiného vysokoškolského studia či k získání jiného nebo stejného titulu.

V Praze, 30.5.2016

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Dagmar Hanzlíková

Abstract

The aim of this thesis is to investigate the influence of foreign accent on credibility of non-native speakers of English. The study was inspired by Lev-Ari and Keysar (2010), who observed that native speakers of English are less likely to believe non-native speakers. In our research we used the same set of statements and similar settings of the experiment to find out whether foreign accent will have the same negative effect on credibility of non-native speakers as perceived by non-native listeners. Six native speakers from Britain and the USA, and six non-native speakers recorded the set of trivia statements for the test and 45 non-native listeners rated on a scale whether they thought the statement they hear is true or not. The results were analysed from multiple points of view such as the influence of accent on credibility, the influence of gender on credibility, and we have also analysed the individual speakers and items in the test to see if the results could be influenced by the behaviour of one individual speaker or an item. The results of the experiment revealed that foreign accent has a negative effect on the credibility of non-native speakers as perceived by non-native listeners. Czech respondents rated British accent of English to be the most credible, while people who spoke with a foreign accent other than Czech were perceived as the least credible. The speaker's gender had no effect on perceived credibility.

Keywords: foreign accent, credibility, speech perception, non-native listeners

Abstrakt

Cílem této magisterské práce je prozkoumat vliv cizineckého přízvuku na důvěryhodnost nerodilých mluvčích angličtiny. Tato práce byla inspirována studií Lev-Ari a Keysara (2010), kteří zjistili, že rodilí mluvčí angličtiny jsou nedůvěřiví vůči nerodilým mluvčím. V našem výzkumu jsme použili stejnou sadu vět a podobné zadání experimentu, abychom zjistili, zda bude mít cizinecký přízvuk stejně negativní vliv na důvěryhodnost nerodilých mluvčích z pohledu nerodilých posluchačů. Šest rodilých mluvčích z Británie a Spojených států a šest nerodilých mluvčích nahrálo k testu sadu vět a 45 nerodilých posluchačů hodnotilo na škále, zdali se domnívají, že je tvrzení, které slyší, pravdivé či nikoli. Výsledky byly vyhodnocovány z různých úhlů pohledu, například jaký vliv má cizinecký přízvuk nebo pohlaví na důvěryhodnost. Také jsme analyzovali jednotlivé mluvčí a jednotlivé položky, abychom zjistili, jestli výsledky mohou být ovlivněné chováním jednoho mluvčího či položky. Výsledky experimentu ukázaly, že cizinecký přízvuk má na důvěryhodnost mluvčího negativní vliv. Čeští respondenti hodnotili britské mluvčí jako nejdůvěryhodnější, zatímco cizinci, kteří hovořili s jiným než českým přízvukem, byli hodnoceni jako nejméně důvěryhodní. Pohlaví mluvčího nemělo na důvěryhodnost žádný vliv.

Klíčová slova: cizinecký přízvuk, důvěryhodnost, vnímání řeči, nerodilí posluchači

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1. Introduction

There have been many studies that investigated the role of foreign accent in speech perception. Most of these studies are concerned with attitudes that native speakers have towards foreign accents; however, in recent years, English is becoming the most important means of communication in international context, where native speakers are not always present. This has led some researchers to believe that it is no longer necessary to attempt to attain native-like pronunciation and instead they focus on mutual intelligibility, while other researchers are still convinced that teaching English based on native models is a necessary part of teaching English as a foreign language. In order to better understand the problem, it is important to explore not only the issues of mutual intelligibility in international context, but also the attitudes that non-native speakers have towards different accents of English. The present study was inspired by the findings of Lev-Ari and Keysar (2010), who revealed that native speakers are less likely to believe foreign-accented speakers. As this might have far-reaching consequences for non-native speakers, the present study will investigate whether foreign accent negatively influences credibility of non-native speakers even in international context – as perceived by non-native listeners.

The paper is divided into two parts. The first part presents a theoretical background for the following experiment. The theoretical background (chapter 2) discusses the issues of speaking with a foreign accent and presents a summary of previous studies in some fields of foreign accent research. The subsections of section 2.1 will be concerned with listener's sensitivity to foreign accented speech (2.1.1), with descriptions of dimensions of accent (2.1.2); we will present the argument of researchers who promote teaching English as a Lingua Franca (2.1.3); we will consider what makes some accents be perceived as better than other accents (2.1.4); the next sections will discuss listeners' perception of foreign accent and their implicit and explicit attitudes towards accented speech (2.1.5 and 2.1.6); lastly we will consider the speaker's experience with having a foreign accent (2.1.7) and present the conclusion of the section (2.1.8). Section 2.2 will describe in more detail the study of Lev-Ari and Keysar (2010) which served as a major inspiration for the present research, and will also present two studies that were stimulated by Lev-Ari and Keysar (2010) and attempted to replicate their findings using slightly different approaches. Lastly,

section 2.3 will introduce our experiment and will propose research questions relevant to the study.

The second part of the paper will be concerned with the experiment, which was conducted in order to see whether foreign-accented speech will influence perceived veracity of statements read by native and non-native speakers. Chapter 3 will present the materials that were used in the experiment (sections 3.1 and 3.2) and will describe the method that was used to obtain and analyze the data (sections 3.3 and 3.4). Chapter 4 will present the results of data analysis that we obtained in the experiment. Chapter 5 will then discuss the findings and attempt to explain the results that we observed in chapter 4. Lastly, chapter 6 will revisit and answer the research questions that were proposed at the beginning of the experiment, and will propose suggestions for further research.

2. Theoretical background

2.1 Foreign accent

The rapid globalization of recent years has led to an increased frequency of contact between native and non-native speakers of English, which in turn resulted in various issues arising in communication between different groups of speakers. In these days, there are more people who speak English as a foreign language than people whose native language is English (Crystal, 1997), which has stimulated an increased interest in studying non-native accents of English and attitudes towards them. The following sections of this chapter will discuss some of the areas of interest in the field of study of foreign accents, such as communication difficulties, listeners' attitudes, or experience of speakers with non-native accents.

2.1.1 Listeners' sensitivity

Listeners in general make evaluations about the speaker based on speech, whether consciously or not. While they are inaccurate at identifying some characteristics of the speaker, such as sexual orientation or body characteristics, they appear to be very accurate at others like gender or a presence of a foreign accent (Derwing & Munro, 2009). Derwing and Munro (2009) further state that accent – either as dialectal differences attributable to region or class, or as phonological variations resulting from L1 influence on the second language – is indeed one of the most salient aspects of speech. Munro et al. (2003) demonstrated that listeners were able to detect foreign accent even in backwards speech, which contains only a limited amount of segmental and prosodic information that could be used to identify non-native speakers. Moreover, accents, especially non-native, are very easily detectable in speech.

Flege (1984) investigated how sensitive listeners are to foreign accented speech. He created a set of hybrid CV syllables (/tu/ and /ti/ from words *two* and *TV*) by splitting the aperiodic /t/ and periodic /u/ or /i/ portions of the syllables produced by native and non-native speakers, and subsequently combining the non-native /t/ part with the native vowel part, resp. native /t/ with the non-native /i/ or /u/. The hybrid CV syllables were then paired with syllables containing two American-produced segments, and listeners were asked to decide which of the two syllables was produced by a non-native speaker. The results

revealed that native listeners were able to detect French-accented English from a single phonetic segment. Based on further experiment, Flege (1984) concluded that differences between native and non-native speakers in the rapid spectral change accompanying the release of /t/ are sufficient cues for native speakers to detect non-native speech.

Furthermore, Major (2007) showed that listeners are also sensitive to non-native accent of a language they do not speak. Because, as the presented evidence suggests, listeners are very sensitive to foreign-accented speech, it is also important to explore what impact the foreign accent has on speakers and listeners.

2.1.2 Three dimensions of accent

To begin with, speaking with a non-native accent may result in problems in communication. Non-native speakers may experience problems making themselves understood due to difficulties with pronunciation like mispronouncing vowels and consonants, or making errors in stress patterns. In order to better understand the issue of foreign accent, Munro and Derwing (1995) introduced three dimensions of accent, *accentedness*, *comprehensibility* and *intelligibility*, and explored their effect on sentence processing time. They define the three concepts as follows: *Accentedness* refers to the degree of the speaker's accent; *comprehensibility* refers to the listener's perception of how easy or difficult it is to understand a given speech sample; and *intelligibility* refers to the extent to which an utterance is actually understood. In this study they measured how long it took the participants to rate whether a statement was true or not, and they found that the degree of comprehensibility had a negative impact on response time while accentedness had no effect. In Derwing and Munro (2009), they further demonstrate that it is possible to be perfectly intelligible and yet be perceived as having a heavy accent; however, unintelligible speakers were always rated as heavy accented. These findings suggest that a foreign accent as such does not necessarily cause problems in communication, although it would be one of the influencing factors. It follows that intelligibility and accentedness are partially independent, while intelligibility and comprehensibility are more closely related.

Rubin's study (1992) might be used to demonstrate the distinction between accentedness and comprehensibility. Rubin divided a class of university students into two groups. Both groups listened to the same recording by a native speaker of English; however, one group was presented with a picture of an Asian instructor, and the other

group a Caucasian instructor. The results showed that those who saw the Asian instructor believed they had heard an accented speech and performed much worse on a comprehension task. This result suggests that comprehensibility is at least partially independent of accentedness, as the recording did not differ in the degree of accent and yet there was a difference in comprehensibility. Even more importantly though, it implies that it might be the listeners' prejudice rather than an accent as such that influences comprehensibility and therefore may lead to problems in communication. Derwing and Munro (2009) confirm that listeners sometimes understand less because they are convinced that they cannot understand.

2.1.3 English as a Lingua Franca

As mentioned above, native speakers form a minority of all users of English in the world. Some researchers therefore believe that it is no longer necessary for learners of English to acquire native-like pronunciation as they very often communicate only with other non-native speakers. Moreover, they argue that people who started learning English later (i.e. not from birth or soon after birth) are unlikely to ever achieve a native-like accent. This is a valid claim because by the age of twelve months infants are no longer able to discriminate phonetic contrasts which are not relevant for their native language (Guasti, 2002:42); therefore, it becomes harder to learn non-native sounds. Jenkins (2011) even goes as far as to suggest that native like pronunciation may actually hinder communication between non-native speakers. Jenkins (1998) claims that learners of English themselves do not wish to be native-like and would rather communicate with other non-native speakers (although Munro & Derwing, 2009, and Szpyra-Kozłowska, 2015 show that students of English prefer to learn native-like pronunciation). Jenkins (1998) says that the most important requirement for communication to be successful is intelligibility and accent should not play a role, which is supported by Derwing and Munro's (2009) finding that it is possible to be perfectly intelligible and yet speak with a heavy accent.

Jenkins (1998) therefore suggests that non-native speakers should focus on the areas of pronunciation which are essential for intelligibility. She proposes a set of Lingua Franca Core (LFC) features, which should ensure intelligibility and at the same time allow speakers to express their identity through their foreign accent. According to her, there are three areas which have the greatest influence on intelligibility: Certain *segmentals*, *nuclear stress*, and *articulatory settings*. Regarding the *segmentals*, Jenkins (1998) says that non-

native speakers should master the 'core' sounds of English, i.e. sounds which appear in all native varieties (most consonant sounds, distinction between long and short vowels) because incorrect pronunciation of these sounds may obstruct meaning. On the other hand she mentions that non-core features, such as vowel quality, the allophone /ɬ/, or the consonants /θ/ and /ð/, which vary among native varieties, are not necessary for intelligibility. The next feature which Jenkins (1998) considers important is *nuclear stress*. According to her, particularly contrastive stress is essential as it typically highlights additional meanings. Moreover, she claims that a misplaced nuclear stress in combination with a deviant core sound may be disastrous for communication in international settings. Word stress, on the contrary, she regards as unimportant because the rules for word stress placement are complex with many exceptions. The last area which Jenkins (1998) considers essential is *articulatory setting*, i.e. 'holistic factors that relate to the degree of tension involved in articulators and the general posture of the lips, tongue and jaw' (Dziubalska-Kołaczyk & Przedlacka, 2005:429). She argues that mastery of articulatory setting will both help the production of core sounds and allow the speaker to manipulate these sounds to produce nuclear stress. Jenkins (1998) concludes that the above mentioned phonological areas are easily teachable and learnable because they are systematic. Other areas, she claims, are neither easily learnable, nor essential for communication to be successful. Apart from the non-core sounds and word stress which were described above, she also mentions as unimportant features of connected speech, such as elision, assimilation, linking, or weak forms, as well as rhythm. She argues that while English is predominantly stress-timed, most of the languages of the world are syllable-timed; therefore, maintaining stress-timing in English is not essential for non-native speakers. Furthermore, Jenkins (2011) argues that many features of English as a Lingua Franca (ELF) seem to be used systematically and frequently by non-native speakers from various L1 backgrounds, for example placing word stress on the longest syllable in the word, or avoiding weak forms.

Christiansen (2014) examines how LFC, together with selected features of delivery, affect intelligibility for non-native listeners. The results of his experiment show that non-native speakers rated a native speaker lower than speakers with foreign accent both on pronunciation and intelligibility scales. However, the results further reveal that the presence of standard features was the most relevant for intelligibility and the core features

suggested by Jenkins (1998) appeared to be the least relevant. Christiansen (2014) suggests other features that might have had a negative effect on intelligibility of the native speaker, mainly speed of delivery, average number of discernible words between pauses, and percentage of pauses in the extract. He found that out of the three proposed features, the number of words between the pauses had the greatest effect on intelligibility.

The concept of ELF has been welcomed enthusiastically by some researchers; however other researchers criticise it vigorously. As mentioned above already, Jenkins (1998) claims that non-native speakers themselves do not want a native-like accent. Szpyra-Kozłowska (2015) investigated the situation in Poland. At first, 134 Polish students of English listened to a short lecture on different varieties of English and their pronunciation, they were presented with examples and they were also informed about the concept of ELF and its pronunciation priorities as mentioned in Jenkins' (1998) LFC. The lecture was restricted to basic facts without any evaluative comments. Subsequently, the students were asked to answer (in writing) the question: 'If you had a choice, which accent of English would you like to learn at school?' A vast majority of respondents opted for either RP (40.2%) or standard American pronunciation (32.8%). Only 13.4% chose ELF as their preferred variety. The respondents were also asked to choose an accent that they would not like to learn. 17% of the students reported ELF as their least preferred variety and only 6% chose RP or standard American pronunciation. These results suggest that students of English prefer to learn native English pronunciation, contrary to Jenkins' (1998) statement. Murphy (2014), although he promotes non-native speakers as models for teaching pronunciation, also concludes that students of English have strong preference for native speaker models. Similar results are to be expected among Czech students of English as a preliminary survey among Czech learners done by the author of the thesis suggests. However, it is possible that the attitudes towards ELF differ in other countries. On the account of ELF, Szpyra-Kozłowska (2015) also stresses the importance of accommodation – a more proficient user of English may accommodate to speakers who are less proficient; however, less proficient speakers cannot accommodate to a more proficient speaker because they cannot produce the sounds. She therefore argues for teaching native-like pronunciation as proficient speakers can accommodate when speaking to other non-native speakers.

It is interesting to notice some of the arguments that the students of English in Szpyra-Kozłowska's (2015) study used to justify their choice of the preferred accent. Very similar comments appeared for both RP and standard American pronunciation:

- It is a universal variety
- Other foreigners learn it too
- Many people know it from songs and TV
- I am interested in British/American culture
- It sounds nice, I like it

Students who chose ELF stressed its international character and simplification of learning. Respondents who selected ELF as their least preferred variety argued as follows:

- I want to learn English in all its beauty and richness, I don't want to learn simplified pronunciation
- It is an unnatural accent and can't sound nice
- Such an accent would not be well-received in an English speaking country

From the comments the students made (for a more detailed description see Szpyra-Kozłowska, 2015: 50-55), we can see that their choice of the native model was often pragmatically motivated; therefore their reasons should not be disclaimed as simplistic. It also appears that many of the students made comments about the aesthetic qualities of a given variety, which leads us to question: What makes an accent better?

2.1.4 What makes an accent better?

Based on previous research, it appears that non-native accents, and very often native non-standard accents as well, are generally rated more negatively than native standard accents. As mentioned in section 2.1.3, learners of English claimed that some accents sound nicer than others. Trudgill (1983) explores what makes some accents be perceived as more pleasant or 'better' than others. He discusses three possible hypotheses: *inherent value* hypothesis, *imposed norm* hypothesis, and *social connotations* hypothesis. The inherent value hypothesis maintains that some accents are inherently more attractive and pleasant than others, and these varieties have acquired prestige because they were the most attractive. This hypothesis is based on the fact that many speakers of various languages are ready to make value judgements on the aesthetic qualities of different varieties of the language. The inherent value hypothesis is supposedly supported by the fact that in experiments using matched-guise technique, listeners responded to the change

of accent in a similar way, which the supporters of this hypothesis consider sufficient evidence to claim that the listeners reacted to the aesthetic qualities of a given variety. Trudgill (1983) however suggests that the listeners' reactions might have been caused by cultural norms which affect the listeners in a similar way. Trudgill's argument is supported by Leemann et al. (2015) who tested the inherent value hypothesis on Bern and Thurgau accents of Swiss German. They noticed that native speakers of Swiss German prefer Bern accent claiming that it sounds 'slow', 'soft', or 'round', compared with 'sharp' and 'pointy' Thurgau accent. Considering the supposedly acoustic cues, Leemann et al. (2015) investigated, whether non-native listeners would show preference for Bern accent as well. The results revealed that while native listeners from Zurich showed a clear preference for Bern accent, there was no significant difference in preference among non-native listeners. When the results were divided by segmental material, native listeners showed a significant preference for sentences containing apical /r/ (apical in Bern accent, uvular in Thurgau accent); however the differences in the realization of apical and uvular /r/ did not affect attractiveness judgements for non-native listeners. Moreover, some features, such as nasalization, are considered 'nice' in some varieties but 'unpleasant' in others (Trudgill, 1983).

According to the imposed norm hypothesis, Trudgill (1983) describes, different varieties of the same language are equally pleasant but are perceived positively or negatively because of particular cultural pressures. This hypothesis ascribes the high prestige of standard accents to the high social status of the people who speak them. Finally, the social connotation hypothesis is an extension to the imposed norm hypothesis. Experiments described in Trudgill (1983) demonstrate that aesthetic judgements about language varieties are culture bound; however, there are still some people who argue against the imposed norm hypothesis. Trudgill (1983) claims that aesthetic evaluations are not simply a matter of cultural norms, but rather a result of a complex of social connotations that different varieties have for particular listeners. Furthermore, the social connotations are not necessarily identical for all members of a culture. To support the social connotation hypothesis, Trudgill (1983) uses the example of rural and urban working-class accents: While both rural and urban working-class accents have lower status compared to RP, the rural accents are generally evaluated as more beautiful than the urban working-class accents, although very often the urban accents are objectively closer to RP.

He ascribes the differences to the connotations people have of different geographical areas, therefore the accents spoken in those areas as well.

Edwards (1999) supports the argument by saying that accents are indeed not inherently better, nor do their aesthetic qualities make them superior. He claims that variation in speech evaluation reflects social perceptions of the speakers of given varieties, and that accents trigger prejudice and stereotypes about the relevant speech community, not about an accent as such. He also suggests that these stereotypes are culturally rooted and therefore can alter over time.

2.1.5 Listeners' perception of foreign accents

Listeners' perception of non-native accents is a widely researched area in sociolinguistics. Previous research showed that listeners' attitudes towards accented speech are best described along two dimensions (as described in Beinhoff, 2013): *Status*, which concerns the perceived prestige of an accent and contains traits like 'intelligent' or 'educated', and *solidarity*, which refers to the extent to which an individual identifies with an accent and contains traits like 'friendly', 'pleasant', or 'reliable'.

It is a generally acknowledged fact in sociolinguistics (described e.g. in Gluszek & Dovidio, 2010a, Edwards, 1999, Munro et al., 2006) that non-native speakers are commonly perceived as less intelligent, less ambitious and less competent than native speakers. While native non-standard accents are rated equally negatively on traits reflecting status as foreign accents (even by speakers who themselves speak with a non-standard accent, see Cargile & Giles, 1998), they tend to be evaluated better in terms of solidarity compared to non-native accents (e.g. Trudgill, 1983, Beinhoff, 2013). Jenkins (2009), a great proponent of ELF (see section 2.1.3), had to conclude that even non-native speakers of English rate native accents most highly in terms of pleasantness, correctness, familiarity, and acceptability; and in the respondents' comments the native accent and accents perceived as native-like were described positively (e.g. *elegant*, *pleasant*), while foreign accents were described negatively (e.g. *unfriendly*, *aggressive*). However, some research shows that foreign accented speakers might be rated more positively by other non-native speakers on the dimensions reflecting solidarity (e.g. McKenzie, 2008). Lippi-Green (1997) also mentions that negative views of foreign accents are reinforced by television

and movies that often associate negative stereotypes with speakers exhibiting particular patterns of speech.

Beinhoff (2013) examines the influence of non-native accents on attitudes towards the speakers and focuses on how social identity is reflected through the non-native accent. Researchers agree that accent plays an important part in establishing group boundaries and therefore determine social identity. Beinhoff (2013) compared six groups of speaker accents – RP, Scottish accent of English, two levels of Greek, and two levels of German accent in English – and examined where native and non-native speakers perceived group boundaries and how they evaluated the accents. Her results showed that both native and non-native (Greek and German) listeners considered RP to be highly prestigious; however, Scottish accent, although native, was perceived as comparable to the non-native accents in terms of prestige by both groups of listeners. Scottish accent on the other hand was rated more positively on solidarity traits than RP and all non-native accents. The results also showed that non-native listeners in the study did not express much solidarity with non-native accents from their own linguistic background, which might support Derwing and Munro's (2009) claim that non-native speakers of English express their social identity by their L1, rather than by an accent of English. This finding seems to go against McKenzie's (2008) study which showed that Japanese non-native speakers rated a stronger Japanese accent of English more positively on solidarity traits than a Japanese accent with less influence from the L1.

Cargile and Giles (1998) conducted a matched-guise experiment where they compared a standard American accent to a Japanese moderate accent, heavy accent, and heavy accent connected with disfluent speech. In addition, they examined whether the content of the message (aggressive or neutral) affects the ratings as well or not. Native speakers of American English evaluated the speaker on traits relating to solidarity, status and also dynamism, which they describe as how active, confident and energetic the speaker sounds. The results show that the speaker was rated as more attractive when speaking with a standard American accent than when speaking with a moderate Japanese accent, and that the heavy Japanese accent was rated as less attractive than the moderate Japanese accent. The most interesting result was that the moderate Japanese accent compared favourably on status-related traits to the standard American accent, which is a unique result for non-native accents in America. The strength of the accent did not affect dynamism. As for the

content of the message, the aggressive utterances were rated more negatively on traits related to attractiveness; however, they were rated more positively on traits related to dynamism. The results of this study imply that we cannot simply claim that all non-native accents are perceived negatively on status-related traits and that more attention should be paid to differences in perception of different accents in different cultural settings. As we could see, there are also other aspects affecting perception of foreign accented speech, like the content of the message. Gluszek and Dovidio (2010a) further state that situational context also has an effect on listeners' accent attitudes; for example, in a more formal setting, like school, non-native speakers were rated significantly lower than in a non-formal setting.

As already mentioned above, listeners' attitudes seem to be culturally rooted (Edwards, 1999). The relatively high status rating of Japanese speakers in the USA, Cargile and Giles (1998) suggest, might be connected with perceptions of social group competitiveness between the Americans and the Japanese. Gluszek and Dovidio (2010a) state that in the USA, Western European accents tend to be perceived more favourably than Asian or Latino accents, although this claim does not seem to hold for status evaluation of Japanese speakers (Cargile & Giles, 1998). Cargile at el. (2010) explore the perceptions of Asian and Latino accents in the USA and they conclude that speakers from Latin America and Asia were rated as more foreign than speakers from Western Europe and they were also evaluated more negatively on traits relating to status (this study did not include Japanese speakers among the Asian accented speakers). Jabber and Hussein (2011) explored native speakers' attitudes towards French, Japanese and Jordanian accented speech. The data for the research were collected by means of a web based survey, and the participants, who evaluated the speech, came from different English speaking countries (USA, Britain, Australia, and Canada). Unlike Cargile and Giles's (1998) study, this research showed that Japanese speakers were rated lower than Jordanian and French speakers on both status and solidarity scales. This result might be supportive of the claim that attitudes are indeed culturally rooted: While Japanese speakers were evaluated higher on social status in America, this did not hold true when the group of listeners consisted also of other native speakers than American.

2.1.6 Listeners' implicit and explicit attitudes

As demonstrated by Rubin's study in section 2.1.2, listeners' prejudice against a speaker plays an important role in communication as well as the accented speech itself. Studies into listeners' attitudes also showed that people often make judgements they are not aware of.

Pantos and Perkins (2013) examined the differences between listeners' implicit and explicit attitudes towards foreign accented speech. Results obtained from an Implicit Association Test (IAT) showed a bias in favour of the native US accent. On the other hand, results from self-report questionnaires, measuring explicit attitudes, showed a significant bias in favour of the foreign accented speech. Furthermore, participants who revealed a stronger pro-US bias on the IAT were more likely to explicitly favour the foreign accented speech in the self-report questionnaires. Pantos and Perkins (2013) explain the predictive oppositional relationship between the two attitude constructs as the listeners' attempt to hypercorrect their explicit attitudes if they suspected their implicit attitudes could reveal a socially unacceptable bias. They conclude that the same individual may simultaneously hold different attitudes towards the same speaker, and that both implicit and explicit attitudes affect the listener's judgement and behaviour.

Munro et al. (2006) investigated the issue as related to teachers of ESL students in Canada. They noted, for example, that teachers consistently underestimated the linguistic proficiency of their ESL students and as a result tended not to interact with them very often. In order to raise awareness of the issue of unconscious stereotyping of the speaker based on their speech only, they prepared a consciousness-raising activity for the teachers. The Canadian teachers listened to speech extracts produced by Canadian speakers and American Southerners from Alabama, and completed an anonymous questionnaire, rating the speakers on Likert scales for traits like 'pleasant to listen to' as opposed to 'unpleasant to listen to', or 'tolerant' as opposed to 'racist'. The listeners also rated the accent on a scale as 'more Canadian-sounding' or 'more American-sounding'. The experiment showed that the listeners were able to discriminate between the Alabaman and Canadian speakers, and that they rated the Alabaman speakers as more racist than the Canadians. When the participants were subsequently confronted with the results of the experiment, many of them were surprised at their own prejudice towards the American Southerners. Munro et al. (2006) conclude that similar activities may help raise the listeners' awareness of covert

attitudes that they hold and subsequently could help them realize and overcome their prejudice in communication with non-native speakers. In their studies (Munro et al. 2006, Derwing & Munro, 2009) they also suggest that in order to improve the communication between native and non-native speakers, the native listeners should be trained in interacting with non-native speakers because experience with accented speech may positively influence people's attitudes and responses to it. Sato (1998) for example found that rural high school students, who did not have much contact with non-native speakers, rated non-native speech more negatively than did students at urban high schools.

2.1.7 Speakers' experience

Most sociolinguistic studies concerned with foreign accents have explored listeners' perception; however, recent research focuses on the experiences of speakers with non-native accents as well. Accent constitutes an important part of social identity (Edwards, 1999) and for example Porter and Garvin (1989) claim that attempting to change someone's pronunciation is unethical because it tampers with the speaker's identity. Derwing and Munro (2009) however say that many foreign students of English wish to attain native-like pronunciation and they see their native language as the clearest expression of their identity, rather than their accented English.

Gluszek and Dovidio (2010b) examined the experiences of the speakers in terms of their anticipation of stigmatization and communicative challenges, and how these processes relate to feeling of belonging in the United States. They say that non-native speakers very often expect negative treatment because of their accent and may attribute problems in communication to listeners' prejudice, which may result in them investing less effort in talking to native speakers. Participants in the study rated their accent strength and completed a questionnaire where they rated *perceived stigmatization*, which assessed their personal experience of bias, *conversational problems scale*, which explored how much participants enjoyed conversations, whether they avoided conversation and how much difficulty they experienced communicating. Lastly, on the *difficulties in communication* scale, non-native speakers reported their own experience, whereas speakers with a native accent were asked to answer the items from the perspective of what they thought the listeners were experiencing. The results showed that the stronger the participants rated their accent, the more bias they reported in perceived stigmatization, and speakers with Latino or Asian accents reported higher perceived stigmatization. Speakers with a non-

native accent also reported a higher level of conversational problems; however, foreign speakers actually reported experiencing fewer difficulties in communication than native speakers thought them to.

To assess the feeling of belonging, Gluszek and Dovidio (2010b) compared answers of non-native speakers and speakers with a regional accent. Although both non-native and non-standard accents are generally stigmatized, the study showed that only non-native speakers reported a lower sense of belonging in the United States. Speakers with a regional accent did not differ from people speaking with a standard accent in their sense of belonging.

One of the influential sociolinguistic studies was conducted by Purnell, Idsardi and Baugh (1999), who investigated housing discrimination of people with non-native accents in the USA. Baugh, a tridialectal speaker (Standard American accent, African-American Vernacular, and Latino accent), conducted telephone interviews with landlords from different localities who were advertising in regional newspapers. He called each of the landlords on three occasions, using a different dialect every time. He used different telephone numbers for each occasion and different pseudonyms, and there were no less than thirty minutes between the calls. Baugh began each call with the phrase: 'Hello, I'm calling about the apartment you have advertised in the paper.' The results revealed a clear pattern of discrimination associated with the three dialects by geographic area – the percentage of appointments made in each locality corresponded approximately with the ethnic makeup of the geographic area. For example, in the traditionally White areas (Woodside and Palo Alto), there was the strongest bias against the non-native dialects. Moreover, Purnell et al. (1999) revealed that listeners were able to identify the three accents using only the word *hello*. Such finding supports the claim by Munro at al. (2003) that accent is indeed a very salient aspect of speech.

Munro (2003) investigated discrimination of foreign-accented speakers in Canada. He identifies three types of accent discrimination that speakers may experience. The first type of discrimination concerns the case of language proficiency, e.g. the non-native speaker is denied a job because his language competence is considered inadequate, although the job does not require language proficiency. The second type is called *accent stereotyping* and concerns cases where speakers are judged based on listeners' association

of an accent with a particular ethnic group. He illustrates accent stereotyping on a study that showed that listeners who misperceived a Ukrainian speaker as having an Aboriginal background ascribed the speaker a more negative personality than they did to other Ukrainian speakers. The third type of discrimination is *harassment* and describes the cases when a foreign speaker is ridiculed or mocked for his non-native accent, for example at his workplace.

2.1.8 Conclusion

This section (2.1) has demonstrated that foreign accent plays an important role in communication. Not only may it cause misunderstandings, but it also influences both the listener's attitudes and the speaker's experience. Further research is necessary to identify what features of a foreign accent decrease intelligibility and how to effectively employ the knowledge into English language teaching. It is also crucial to investigate what kind of judgements (e.g. intelligence, friendliness, reliability etc.) listeners make about the speakers based on speech only in order to raise awareness of the issue and possibly help the listeners realize and overcome their prejudice and improve their communication with non-native speakers.

2.2 The influence of accent on credibility

The present study will investigate listeners' judgements about the credibility of non-native speakers. It will extend the study of Lev-Ari and Keysar (2010); therefore their research will be presented here in more detail, as well as some of the studies that attempted to verify their results.

Lev-Ari and Keysar (2010) investigated the influence of non-native accent on credibility as perceived by native speakers of English. They assumed that the fact that non-native accents are more difficult to process (e.g. in Munro & Derwing, 1995) may cause non-native speakers to sound less credible.

In their two experiments they used three types of accent, each represented by three different speakers: native, mild non-native (Polish, Turkish, and German), and heavy non-native (Korean, Turkish, and Italian). The level of accent was classified according to the judgement of four native speakers of English. Each speaker recorded a set of 45 trivia

statements whose truth value was not to be easily determined such as *A giraffe can go without water longer than a camel can*. Half of the statements were true and half were false. The test consisted of 15 statements by the native speakers, 15 statements by the non-native speakers with a mild accent, 15 by the non-native speakers with a heavy accent, 15 filler statements read by additional two native speakers, and 2 example sentences. The statements and the speakers were counterbalanced, and the statements were presented in two mirror orders across participants.

Thirty native speakers of American English participated in the first experiment. The experiment was ostensibly about intuition in knowledge assessment and the participants were told that the speakers were only reading what the experimenter wrote and did not know themselves whether the statements they were reading were true or not. To support the claim that the speakers were only messengers, the participants themselves recorded five trivia statements, supposedly for future participants. After recording the statements, they listened to the set of sixty statements preceded by two example sentences, and indicated veracity of each statement on a 14 cm line with one pole labelled *definitely true* and the other *definitely false*. The participants also indicated whether they knew for a fact that the statement was true or not, and they were also asked to indicate if they could not understand what the speaker said.

Listeners' truth judgements were analyzed using a mixed model. The results of the experiment showed that accented speech was rated as significantly less truthful than native speech (see Figure 1). Statements with mild and heavy accent did not differ from each other. Because the statements read by non-native speakers were perceived as less truthful even when it was stressed that they were only delivering information from the experimenter, Lev-Ari and Keysar (2010) assume that the listeners misattributed the difficulty of processing speech to the truthfulness of the statements.

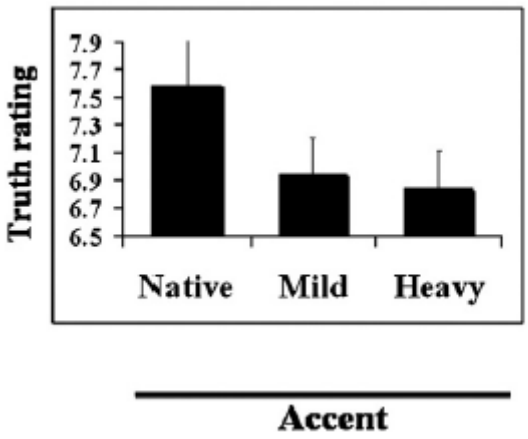

Figure 1. Truth ratings as a function of accent in the Experiment 1. The *y* axis indicates distance from the *Definitely False* pole on the scale, so higher numbers indicate higher perceived truth (Lev-Ari & Keysar, 2010: 1094).

The second experiment tested whether awareness of the processing difficulty would influence listeners' judgements of truth value. The stimuli were identical to those used in the first experiment. Instead of focussing on the presentation by the speaker, the participants in Experiment 2 were told that 'the experiment was about the effect of the difficulty of understanding speakers' speech on the likelihood that their statements would be believed' (Lev-Ari & Keysar, 2010: 1095). Twenty-seven native speakers of English who did not take part in Experiment 1 listened to the stimuli and again rated veracity of each statement on a 14 cm line. In Experiment 2, the results showed that only the heavily accented speech was perceived as significantly less truthful, while truth rating did not differ between mild and native accents (see Figure 2 below). Lev-Ari and Keysar (2010) suggest that the participants attempted to counteract the impact of processing difficulty, but were only successful for mildly accented speech.

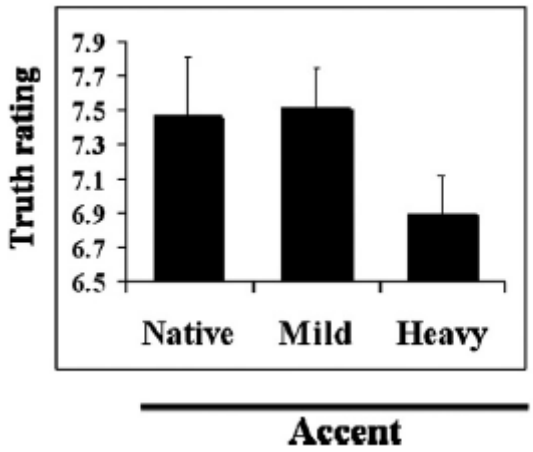

Figure 2. Truth ratings as a function of accent in Experiment 2. The *y* axis indicates distance in cm from the *Definitely False* pole of the scale, so higher numbers indicate higher perceived truth (Lev-Ari & Keysar, 2010: 1095).

Lev-Ari and Keysar (2010) conclude that native listeners perceive statements as less truthful when spoken by non-native speakers, even when the speakers were only delivering a message from a native speaker. The awareness of the role of processing difficulty in assessing truth value positively influenced credibility of mildly accented speakers; however, listeners were not able to undo the impact of difficulty when speakers had a heavy accent. It is questionable though, whether we may assume that the reduced credibility was a result of processing difficulty only, or whether it was influenced by the foreign accent as well. As discussed in section 2.1, foreign accent is a very salient aspect of speech and listeners are often unaware of the influence of foreign accent on their judgement (e.g. in Munro et al., 2006), so it is uncertain if the respondents would be able to cancel the effect of foreign accent even after being told that the speaker is only a messenger. Whether due to processing difficulty or the effect of a foreign accent, the results have important implications for non-native speakers because their accent might reduce their credibility as job seekers, eyewitnesses, or reporters, as noted by Lev-Ari and Keysar (2010).

Frumkin (2007) investigated whether accent and ethnic background influence perceived credibility and favourability of eyewitness testimony in criminal trials. She used three speakers representing eyewitnesses (German, Mexican and Lebanese) and each of the three speakers recorded the same testimony, once with a foreign accent and once accent-free. Her results showed significant effects for accent on four dependent variables:

credibility, accuracy, deception, and prestige. This means that the same speaker was perceived as less credible, less accurate, less prestigious, and more deceitful when speaking with a foreign accent. The results also revealed differences between different accents: The Lebanese accent was perceived significantly more negatively on all the dimensions than both German and Mexican accents. Such findings indeed make the implications suggested by Lev-Ari and Keysar (2010) most relevant.

Because of its possible implications, Lev-Ari and Keysar's study (2010) inspired further research into the role of foreign accent in credibility. De Meo et al. (2011) investigated the relation between credibility and foreign accent in Italian context with Chinese speakers of Italian. Apart from foreign accent, they also investigated other segmental and suprasegmental acoustic credibility correlates, such as silent pauses duration, speech rate, fluency, and so on. Native and non-native speakers of Italian read twelve bizarre-but-true news from around the world, and native Italian listeners rated whether they thought the statements were true or not. Contrary to Lev-Ari and Keysar's study (2010), the results in this study did not confirm a correlation between foreign accent and credibility. Further analysis of other acoustic correlates revealed a significant effect of tonal range and duration of silences on credibility: Credibility increased when the speaker restricted the tonal range and increased the duration of silent pauses. In order to validate the data obtained from the first experiment, De Meo et al. (2011) conducted a second experiment based on modified natural speech. They artificially increased and decreased tonal range and silent pauses and administered the test to native Italian listeners. The results of the second experiment confirmed that wider tonal range and shorter silent pauses correlate with lower credibility value. The findings of De Meo et al. (2011) suggest that suprasegmental features of an utterance are more important to perceived veracity of a statement than foreign accent.

Another study that attempted to replicate the findings of Lev-Ari and Keysar (2010) was done by Souza and Markman (2013). First of all, they investigated, whether it is processing difficulty that influences judgements of truth. A native speaker of English recorded 70 trivia statements, similar to those used in Lev-Ari and Keysar (2010), which were subsequently mixed with white noise at different Sound-to-Noise Ratios. Native speakers of English rated the truthfulness of each statement. The results obtained in this experiment revealed that different levels of white noise did not affect truthfulness ratings.

Souza and Markman (2013) suggest that the lack of influence of white noise on perceived veracity might be due to the fact that listeners rarely hear speech against white noise, so that it would not pose as a competitor to the speech signal. In order to investigate this possibility, they mixed the 70 statements from the first experiment with speech babble noise instead of white noise. The results of the second experiment did not reveal a significant effect of speech babble noise on credibility either. The combined results of the two experiments suggest that processing difficulty does not influence judgements of truth, which goes directly against Lev-Ari and Keysar's (2010) claim.

In the second part of the study, Souza and Markman (2013) attempted to replicate Lev-Ari and Keysar's findings using foreign accented speech. Previous research showed that listeners might be unconsciously prejudiced against non-native speech even if they do not recognize the speaker's nationality (e.g. in Pantos & Perkins, 2013). Therefore, it might have been implicit prejudice against non-native speakers in general that caused the decreased credibility of non-native speakers in Lev-Ari and Keysar's study (2010), rather than the processing difficulty. Souza and Markman (2013) used the same 70 statements as in the first part of the study recorded by a native English speaker, two Brazilian-Portuguese speakers, and two Korean speakers. Sixty-five native speakers of English participated in the study and rated truthfulness of the statements. The results of this experiment failed to replicate the findings reported by Lev-Ari and Keysar (2010). As previous research has demonstrated that listeners normalize accented speech before processing, Souza and Markman (2013) suggest that the participants in their study normalized the accented speech after a short period of exposure; therefore the accent did not affect the subsequent judgements about truth value.

To conclude, there is contrasting evidence as to whether foreign accent influences perceived credibility of non-native speakers or not. Lev-Ari and Keysar (2010) claim that the processing difficulty associated with foreign accent negatively influences credibility rating of non-native speakers. However, Souza and Markman (2013) failed to replicate their results and they found no correlation between processing difficulty, as expressed by white noise and babble speech, and perceived truthfulness. De Meo at al. (2011) found no evidence of correlation between foreign accent and credibility either, but they revealed a significant influence of suprasegmental features on judgements of truthfulness. It is, therefore, possible that the results obtained by Lev-Ari and Keysar (2010) might have been

influenced by suprasegmental features of the utterances or individual speech characteristics of the speakers like voice colour etc.

2.3 Research questions and hypotheses

Although it is possible that Lev-Ari and Keysar's (2010) results might have been influenced by suprasegmental features, it would not explain why there were significant differences between accented and native speech (which were not found by De Meo et al., 2011), and why listeners were able to correct for the mildly accented speech and not for the heavily accented speech when aware of the purpose of the experiment. Moreover, Lev-Ari and Keysar's (2010) results correspond to the findings of Pantos and Perkins (2012), who demonstrated that native listeners exhibited an unconscious pro-US accent bias, but a pro-foreign accent bias on explicit measures. The listeners in Lev-Ari and Keysar's (2010) Experiment 2 might have attempted to correct their explicit attitudes toward non-native speech for fear of revealing a socially unacceptable prejudice, although they were only partially successful. Previous research, in general, shows that foreign accent indeed does influence listeners' attitudes toward non-native speakers (see section 2.1), and, as there is contrasting evidence of correlation between foreign accent and credibility, it is desirable to investigate the issue further.

The present study will investigate the influence of foreign accent on credibility as perceived by non-native speakers of English. We will use the same set of trivia statements as did Lev-Ari and Keysar (2010), recorded by native speakers of British English, native speakers of American English, Czech speakers of English, and non-native speakers of English (other than Czech). A group of Czech learners of English will rate truthfulness of each statement on a 7-point Likert scale (for a more detailed description see chapter 3).

Lev-Ari and Keysar (2010) only investigated the perceptions of native speakers and we will use their results as a reference point to compare our results to. However; because in today's globalized world there are many situations in communications where only non-native speakers are present, we will investigate whether foreign accent influences credibility in perception of non-native speakers of English as well. Furthermore, we will examine whether there are differences in perceived credibility between the four groups of speakers. As we have two groups of native speakers, we will also investigate, whether

there are any differences in perceived credibility between British and American speakers, or whether they behave as a group. We will also examine, whether Czech listeners perceive Czech accent in English more favourably than other non-native accents. McKenzie (2008) found that Japanese speakers of English rated a stronger Japanese accent more favourably on solidarity traits than a Japanese accent with less influence from the L1. On the other hand, Volín, Skarnitzl and Henderson (submitted) found an out-group bias, where Czech listeners evaluated speakers with a Czech accent in English in a harsher way than they did speakers with a French accent in English.

The research questions can thus be summarized as follows:

1. Does foreign accent have a negative effect on credibility as perceived by non-native listeners?
2. Is there any difference in perceived credibility between the four groups of speakers?
3. Is there any difference in perceived credibility between the two groups of native speakers (British and American) or do they behave as a group?
4. Do Czech listeners exhibit a bias, positive or negative, for Czech-accented English as compared to other non-native accents?

3. Materials and Method

3.1 Sound materials

In order for the present study to be comparable with the original study of Lev-Ari and Keysar (2010), the same set of trivia statements was used[1], including the true statements, the false statements, the fillers and the two examples (for more information see section 2.2). However, slight modifications had to be made because the participants in our research – speakers, as well as listeners – will be non-native speakers of English, who could have problems with pronouncing or understanding some particular items of vocabulary. In order to identify the difficult items, the list of statements was given to three Czech speakers of English (B level, based on the Common European Framework of Reference for Languages, 2001) who marked the items or constructions they did not understand or did not know how to pronounce. Subsequently, the problematic vocabulary items were either replaced by another item from the same semantic field (e.g. *falcon* was replaced by *eagle*), or in five cases the whole sentence was replaced by another with the same truth value. All imperial units were converted into the metric system (e.g. *gallons* to *litres*), so that non-native speakers of English could understand the measurements. After the changes were made, the same three non-native speakers reported that they had no problem with understanding the statements. The final list of statements consisted of 60 statements, half of which were true, and 2 example sentences. The truth value of the statements was not to be easily determined, so that the respondents would not rely on their everyday knowledge.

3.1.1 Speaker selection and recording

The sixty statements on the list were recorded by 12 different speakers, who represented four groups. The first group consisted of three native speakers of English coming from England (two male, one female). The female speaker comes from the Southern England, the two male speakers come from the Northern England. In the second group there were three native speakers of English coming from the United States (one male, two female). The third group was formed by three Czech speakers of English (one

[1] We would like to thank Shiri Lev-Ari for providing us with the list of statements which were used in Lev-Ari and Keysar (2010) for the purposes of this research. Because the list of statements was not published as a part of the original study and was given to us by the author, it will not be published in this study either and will only be available for viewing at the Institute of Phonetics at Charles University.

male, two female), who studied English as their second language (B level based on CEFR, 2001). The last group consisted of three non-native speakers of English (two male, one female) whose mother tongues were French, Arabic (the speaker coming from Egypt), and Russian, and whose degree of accent was comparable to that of the Czech speakers of English. All speakers were aged between 20 and 40 years (for the summary of the speakers see Table 1). The two example statements were read by additional two speakers who were not used in the test, one of them being a native speaker of English from Cape Town, the other a proficient non-native speaker from Italy. None of the speakers had any speech impediment. Immediately before the recording, they had time to get acquainted with the list of statements in order to prevent disfluencies when reading. Non-native speakers were encouraged to ask how to pronounce unfamiliar words, so that the meaning of the statements would not be obscured by mispronunciation. The speakers did not know whether the statements they were reading were true or not, and they did not know the purpose of the study.

Speaker	Mother Tongue	Gender	Speaker	Mother Tongue	Gender
BRE1	BrE	M	CZE1	Czech	F
BRE2	BrE	F	CZE2	Czech	F
BRE3	BrE	M	CZE3	Czech	M
AME1	AmE	F	NNS1	Russian	F
AME2	AmE	M	NNS2	Arabic	M
AME3	AmE	F	NNS3	French	M

Table 1. The summary of the speakers used in the test. (BrE = British English, AmE = American English, M = Male, F = Female)

The recordings were made in a sound treated room and digitized at the sampling rate of 44 100 Hz. All the recordings were normalized to 72 dB using the function Scale intensity in Praat (Boersma & Weenink, 2015) to prevent unwanted changes in sound-pressure level (SPL) of the recording from influencing the evaluation.

3.1.2 Sound files for the test

Two versions of the perceptual test were prepared (A and B). Each version contained all sixty statements and the two examples. Five statements by each of the twelve speakers were selected for each version of the test, so that none of the statements contained

any hesitation sounds or long or unnatural pauses that could influence veracity rating. We also tried to minimize the presence of obvious mispronunciations in the statements read by the non-native speakers, although this was not always possible. We attempted to select 5 true and 5 false statements by each of the speakers; however, we have not always succeeded in the case of the non-native speakers due to mispronunciations or hesitations in many of the statements (details about the number of true and false statements by each of the speakers will be provided in chapter 4, in the relevant sections). At least one of the statements by each speaker was true and at least one was false in each version of the test. Statements which were read by a native speaker in version A were read by a non-native speaker in version B. The order of the statements in each version was organized according to multiple hierarchical rules:

1. Two statements by the same speaker never follow each other.
2. There is never the same sequence of speakers (e.g. BRE1 never follows CZE1 twice).
3. Statements with a similar content never follow each other (e.g. statements about polar bears).
4. Speakers from the four groups (BRE, AME, CZE, NNS), and male and female speakers alternate as much as possible, but at the same time irregularly (avoiding same sequences).
5. The distance between different statements by the same speaker is maximised.
6. True and false statements alternate.

After the statements were organized as described above, the statements in each version were connected into one sound file. The statements were divided by 7 seconds of silence to give the respondents time to answer, and a short signal tone (beep) was placed 0.7 second before the next statement, so that the participants start concentrating on the next item. Before the first and then before every fifth item there were two beeps to help the respondents follow the items.

3.2 Perceptual test

The materials for the perceptual test consisted of a data collection sheet and a short questionnaire, both of which were prepared in English (see Appendix A). In the data collection sheet, the respondents marked to what extent they believed the statement was

true or false, using a 7-point Likert scale with one pole labelled *definitely true* and the other *definitely false*. Next to the scale there were two boxes labelled *I know the answer*, and *I did not understand*. The respondents indicated, whether they knew for a fact that the statement was true or false (marking *I know the answer*) and they were also asked to mark the *I did not understand* if they for example could not understand some vocabulary items or did not hear the sentence properly. In the questionnaire part, the respondents filled out their gender, age, their native language and other languages they speak, and their study programme (either what they are studying or what they have finished).

When the materials were ready, we pre-tested the experiment on three Czech speakers of English to make sure that there is no issue with the recordings or the answer sheet and that the respondents have enough time to evaluate each statement. One of the participants in the pre-test was an employee at the Institute of Phonetics, who provided valuable feedback on the visual form of the answer sheet and helped to improve the instructions for the participants in the experiment. Another participant was a less proficient speaker of English, whom we tested to make certain that even less proficient speakers in the experiment have enough time for evaluation. Apart from the adjustments to the visual form of the answer sheet, no other changes were made to the recording, or to the content of the answer sheet.

3.3 Subjects and testing

Two groups of listeners were tested on two separate occasions, on group was listening to version A of the test, the other to version B. In total there were 46 respondents, 40 female and 6 male. Both groups consisted of university students of Anglophone Studies, their age ranging between 19 and 38 years (Mean: 20.80, SD: 3.05, Mod: 20, Med: 20) and they took part in the experiment during a lecture. All of them were non-native speakers of English (see Table 2 below for details).

Mother tongue	n
Czech	33
Russian	6
Slovak	4
Ukrainian	1
Hungarian	1

Table 2. The number of participants (n) with different mother tongues. In total there were 46 respondents; one of them did not fill in their mother tongue.

The respondents were told they were going to assess whether the information they hear was true or not. They were told that the speakers they were going to hear were only reading a list of statements prepared by the experimenters and they did not know whether the statements they were reading were true or not. The participants were then strongly advised to focus on the content of the statements, which was repeated several times throughout the instructions. The answer sheets were distributed and the respondents were familiarized with its contents (as described in section 3.2). In addition, they were told that the statements were intentionally compiled so that their truth value would not be easily determined and they were asked to use 'zero' (the middle of the scale) as little as possible and to really form an opinion about the truthfulness of the statement. The participants were told the questionnaires are anonymous; therefore, they need not be afraid of somebody judging them. There was a space for questions after the instruction part and once again after the two trial items to make sure the participants understood the task.

Some changes in the procedure of the experiment were made compared to the original study (Lev-Ari & Keysar, 2010). In Lev-Ari and Keysar (2010), the experiment was ostensibly about intuition in knowledge assessment and the participants were tested individually. In their study, the participants themselves recorded several statements prior to the experiment and they were told they were going to listen to other participants, which helped them understand that the speakers they were going to hear only served as messengers and did not create the statements themselves. Such precaution was taken in order to demonstrate that the linguistic and cultural background of the speakers was irrelevant to the truth value of the statements. Using this procedure was not possible in the scope of the experiment presented in our study; however, we attempted to achieve the same effect through careful instruction. The participants were shown a list with statements

such as the one the speakers were reading (they could not read the statements) and they were repeatedly told to focus on the content of the statements they were going to hear because the speakers themselves did not know whether the statements they were reading were true or not.

3.4 Data analysis

The data about the speakers and the data collected from the answer sheets were entered into a MS Excel sheet. Some data were excluded from the final analysis based on the following criteria:

1. An item (one statement rated by one respondent) was excluded if the respondent selected no answer, more than one answer, or if he or she marked *I know the answer* or *I did not understand* in the answer sheet.
2. A respondent was excluded if more than a half of his answers were excluded based on criterion 1.
3. A statement was excluded if more than a half of the scores were excluded based on criterion 1.

Based on these criteria, one respondent (female who did not fill in her mother tongue) and four statements (one by BRE2, one by BRE3, one by CZE2, and one by NNS3) and several individual items were excluded. The analyses are thus based on the data from 45 listeners (39 women, 6 men), 10 statements by 8 of the speakers and 9 statements by 4 of the speakers. In total, there were 2187 items. The data were subsequently analysed using an analysis of variance in the program STATISTICA, Version 10 (Statsoft, 2011) and the results are presented in chapter 4.

4. Results

In this chapter, the data collected from the experiment are analysed using an analysis of variance. In section 4.1 we analyze the differences between native and non-native speakers, in accordance with Lev-Ari and Keysar (2010). At first they are only divided into two groups of native and non-native speakers, and then we also analyzed the differences between British, American, Czech and other non-native speakers to see if the native and the non-native speakers behave as a group or whether there are any differences in their evaluation. We also considered whether there were any differences in evaluating true and false statements, because the respondents could have been influenced by their knowledge but not feeling confident enough to mark the *I know the answer* box in the answer sheet. We also looked whether the two groups of respondents, Czech and other non-native speakers, rated the speakers similarly or not. Section 4.2 describes the results for the individual speakers in the context of their language group to see whether the results obtained in section 4.1 could have been influenced by one particular speaker sounding more, resp. less credible than other speakers in the group. In section 4.3 we consider the effect of gender of the speaker on the evaluation. Lastly, section 4.4 compares the evaluations of the individual statements as read by native and non-native speakers.

4.1 Native vs. non-native speakers

For the analysis in this section, we used 30 statements by American speakers, 28 statements by British speakers (two statements excluded based on the criteria presented in section 3.4), 29 statements by Czech speakers (one statement excluded) and 29 statements by other non-native speakers (one excluded). At first we looked whether there is any difference between native speakers as a group (British and American speakers together) and non-native speakers (both Czech and other non-native speakers).When all respondents were considered as a group (the majority of them being Czech, see section 3.3 for details), the results presented in Figure 3 revealed a statistically significant bias against non-native speakers (one-way analysis of variance: F (1, 2185) = 20.73, $p < 0.0001$).

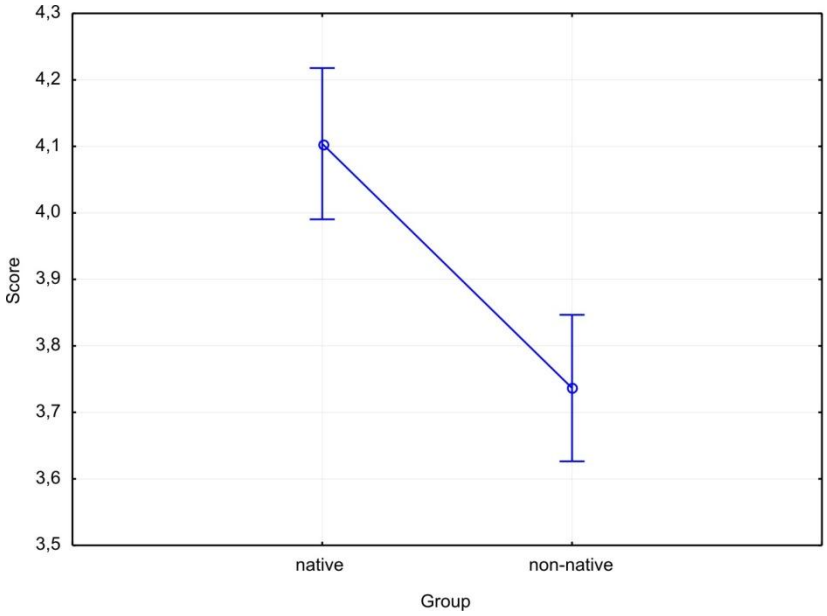

Figure 3. The difference in truthfulness evaluations between native and non-native speakers. The *y* axis indicates the veracity score on the scale from 1 to 7; the higher the number, the more truthful the statement was perceived.

In the next step, we looked at the differences between the four groups of speakers to see if any of the groups is perceived as more trustworthy than the others.

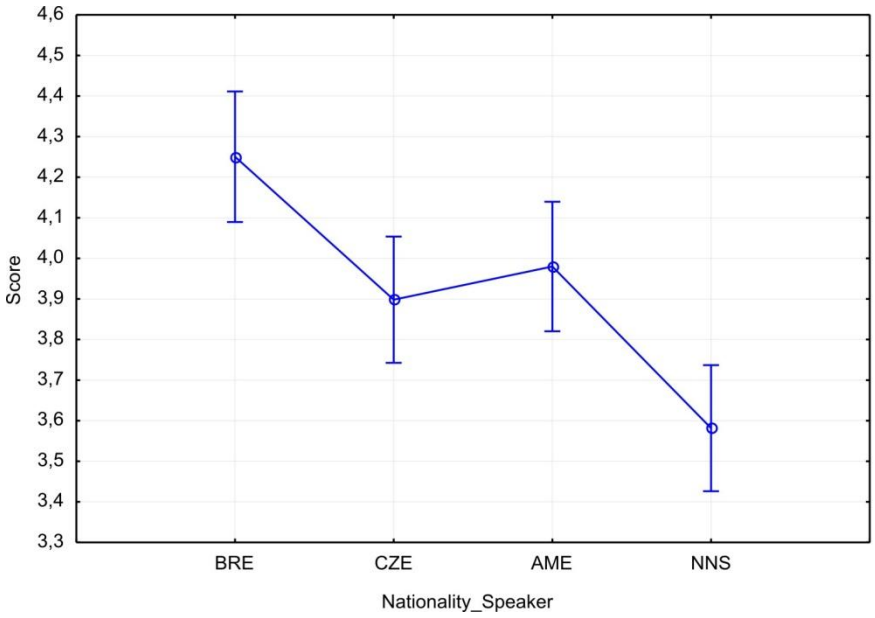

Figure 4. The difference in truthfulness rating between the four groups of speakers – British (BRE), Czech (CZE), American (AME) and other non-native (NNS).

The results again revealed a significant difference (one-way analysis of variance: F (3, 2183) = 11.38, $p < 0.0001$). As we can see in Figure 4 above, the respondents were most likely to believe British speakers of English, while the group of non-native speakers, other than Czech, was considered the least trustworthy. The difference between the British and the American speakers is only marginally significant (post-hoc Tukey HSD: $p = 0.08$). It is interesting to notice that while there is a significant difference between the Czech and the British speakers (post-hoc Tukey HSD: $p < 0.01$), there is only a small difference between the Czech and the American speakers, in favour of the American speakers. The group of non-native speakers showed a statistically significant difference not only against both groups of the native speakers (post-hoc Tukey HSD: $p < 0.01$) but also against the Czech speakers (post-hoc Tukey HSD: $p < 0.05$).

In the next part, we considered whether the results could have been influenced by the actual truth value of the statement (e.g. if the false statements were less likely to be believed). As we mentioned in chapter 3, the veracity of the statements was not to be easily determined; however, some listeners could have suspected the answer but were possibly not confident enough to mark the *I know the answer* box in the answer sheet. Let us also repeat that the following statements were excluded from the analysis (based on the criteria in section 3.4): 1 true statement by a Czech speaker, 1 false statement by a non-Czech non-native speaker, 1 true statement by a British speaker and 1 false statement by a different British speaker. The results of the groups of native and non-native speakers presented in Figure 5 below revealed a statistically significant difference (two-way analysis of variance (factors GROUP and TRUTH VALUE): F (1, 2183) = 5.56, $p < 0.05$). Looking at Figure 5 in more detail, it is interesting to notice that while the group of native speakers was more likely to be believed regardless of the truth value of the statements, there was a significant difference between the true and the false statements read by non-native speakers, where false statements were less likely to be believed (post-hoc Tukey HSD: $p < 0.01$). It is important to remember that as there were two versions of the test (see section 3.1.2), all the statements on the list were read by both native and non-native speakers (except for the four statements that were excluded from the analysis); therefore, the results should not be affected by the difference in the content of the statements.

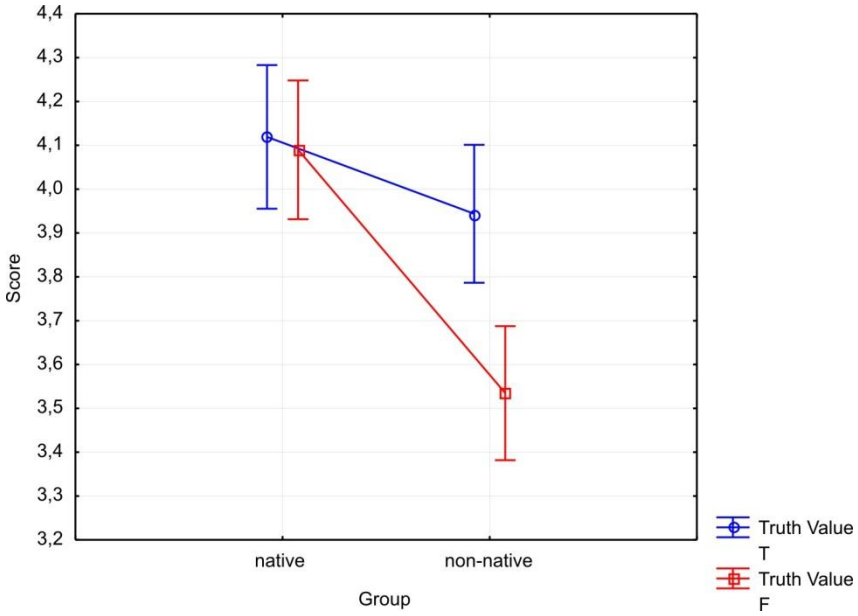

Figure 5. The difference in truthfulness rating between native and non-native speakers, combined with the information about the actual truth value of the statements.

In order to obtain more detailed information, we divided the speakers into the four groups, as we did above. Figure 6 shows that while the truth value of the statements had no effect for British, American and non-native speakers, there was a significant difference between the true and the false statements read by Czech speakers (post-hoc Tukey HSD: $p < 0.001$). Therefore, the effect we could observe in Figure 5 seems to have been caused by the difference between the true and false statements read by the Czech speakers. We will look at the individual speakers in the following sections to see whether the result could have been influenced by the behaviour of one individual speaker or an item.

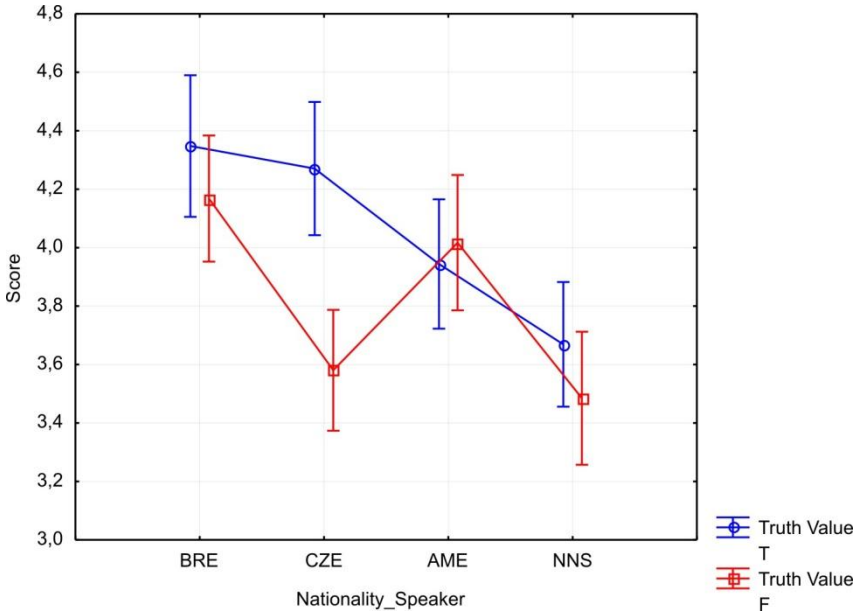

Figure 6. The differences in truthfulness evaluations between the four groups of speakers – British (BRE), Czech (CZE), American (AME) and other non-native (NNS) – combined with the information about the actual truth value of the statements.

Up until now, the respondents were treated as a group, regardless of their mother tongue. In the next part, the respondents will be divided into two groups: Czech listeners (33 respondents) and others (12 in total, four different mother tongues, see section 3.3). When discussing the results in this part, we need to keep in mind that the two groups are not directly comparable as there were nearly three times more Czech respondents, and the other respondents came from different linguistic backgrounds.

Figure 7 below shows the difference in rating of the four groups of speakers between the Czech and the other non-native respondents (two-way analysis of variance (factors MOTHER TONGUE and RESPONDENTS): F (3, 2179) = 3.43, $p < 0.01$).

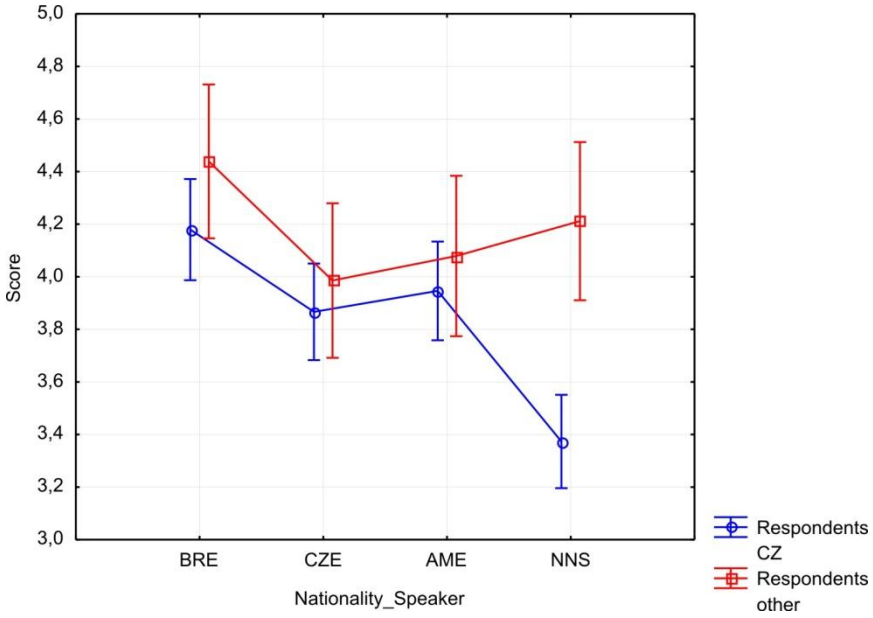

Figure 7. The differences in truthfulness evaluations between the four groups of speakers – British (BRE), Czech (CZE), American (AME) and other non-native (NNS) – combined with the information about the differences between the two groups of respondents.

As we can see, the non-Czech respondents rated all groups of speakers better than did the Czech listeners, although in most cases the difference is not significant. The results however show that Czech listeners are significantly less likely to believe non-native speakers than are non-Czech listeners (post-hoc Tukey HSD: $p < 0.001$).

When adding the information about truth value, the results shown in Figure 8 did not reveal significant differences (three-way analysis of variance (factors: MOTHER TONGUE, RESPONDENTS and TRUTH VALUE): F (3, 2171) = 0.36, p = 0.78). However, we may see that the difference between the rating of true and false statements by the Czech speakers, which was observed in Figure 6 above, seems to have been caused mainly by the Czech listeners. While non-Czech listeners rated false statements by Czech speakers as less truthful than true statements as well, the difference is not significant.

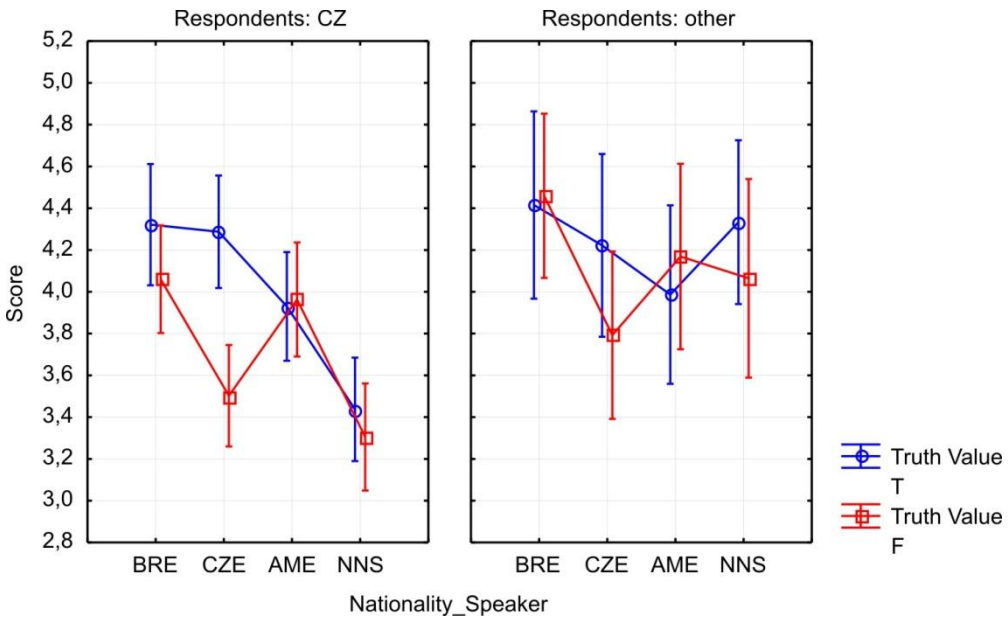

Figure 8. The differences in truthfulness evaluations between the four groups of speakers – British (BRE), Czech (CZE), American (AME) and other non-native (NNS) – combined with the information about the differences between the two groups of respondents (left and right), and with the information about the actual truth value of the statements.

4.2 Speaker analysis

In this section we analyse truthfulness ratings of individual speakers grouped by their mother tongue (the three non-native speakers forming one group). When discussing the results separated by the two groups of listeners, we need be reminded that the two groups of respondents are not directly comparable as there are only 12 respondents in the non-Czech group (as mentioned already above in section 4.1).

4.2.1 Czech speakers

Figure 9 below presents the results obtained for the three Czech speakers by all respondents combined, separating true and false statements. One true statement by CZE2 was excluded from the analysis because more than a half of the score ratings were not available from the answer sheets (respondents did not answer, marked more than one answer, or marked *I know the answer* or *I did not understand*). 10 statements by CZE1 (3 true and 7 false) and CZE3 (5 true and 5 false), and 9 statements by CZE2 (5 true and 4 false) were used in the analysis. The number of true and false statements for each speaker is not always balanced as many of the statements by the non-native speakers could not be

selected for the test due to obvious mispronunciations or hesitations and unnatural pauses (see section 3.1.2 for details).

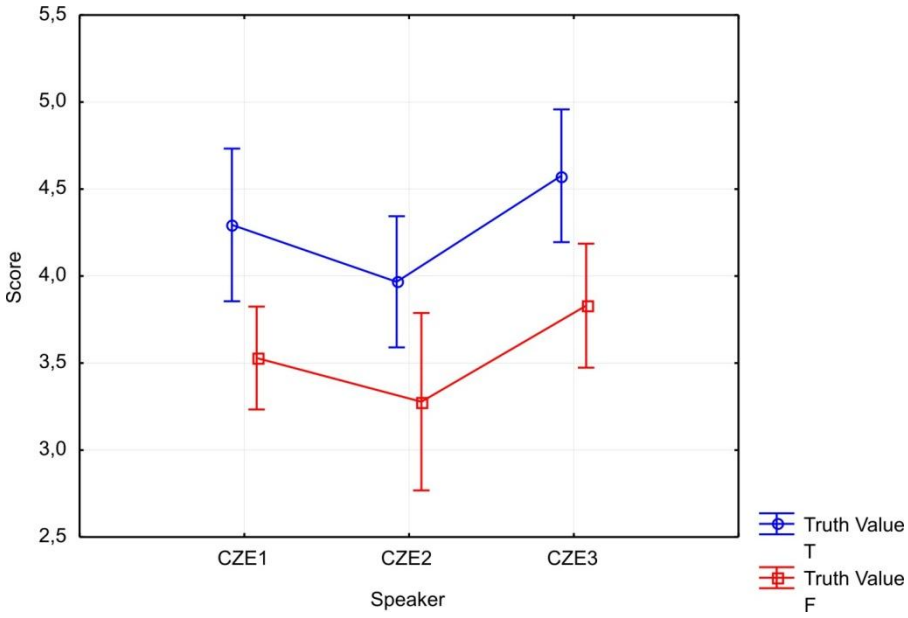

Figure 9. The differences between the individual speakers within the group of Czech speakers, combined with the information about the actual truth value of the statements.

As we can see in Figure 9, the true statements were generally rated as more truthful than the false statements, a tendency which we observed in Figure 6. In the case of CZE1, the difference is statistically significant (post-hoc Tukey HSD: $p < 0.05$) and marginally significant in the case of CZE3 (post-hoc Tukey HSD: $p = 0.058$). However, if we look at the number of statements by CZE1, we can see that 7 of her statements were false and only 3 statements were true; therefore, the evaluation might be influenced by the content of the statements or behaviour of one of the statements – the issue will be discussed further in the Discussion (chapter 5). Other statistically significant results in this part were between true statements by CZE3 and false statements by CZE1 and CZE2 (post-hoc Tukey HSD: $p < 0.001$ in both cases).

In Figure 10, we add the information about the rating of the two groups of respondents. We can see that while there is a significant difference between the true and the false statements by CZE1 in the scores of the Czech listeners, no such difference can be observed among the non-Czech listeners. In general, the Czech listeners seem to be rating the true statements by Czech speakers as more truthful than the false statement, which we may only observe for statements by CZE3 among other non-native listeners, none of the

differences, apart from CZE1 by Czech listeners, was statistically significant. None of the speakers as a whole was perceived as more, resp. less truthful than any of the others; therefore we may conclude that the three Czech speakers in the test behave as a group.

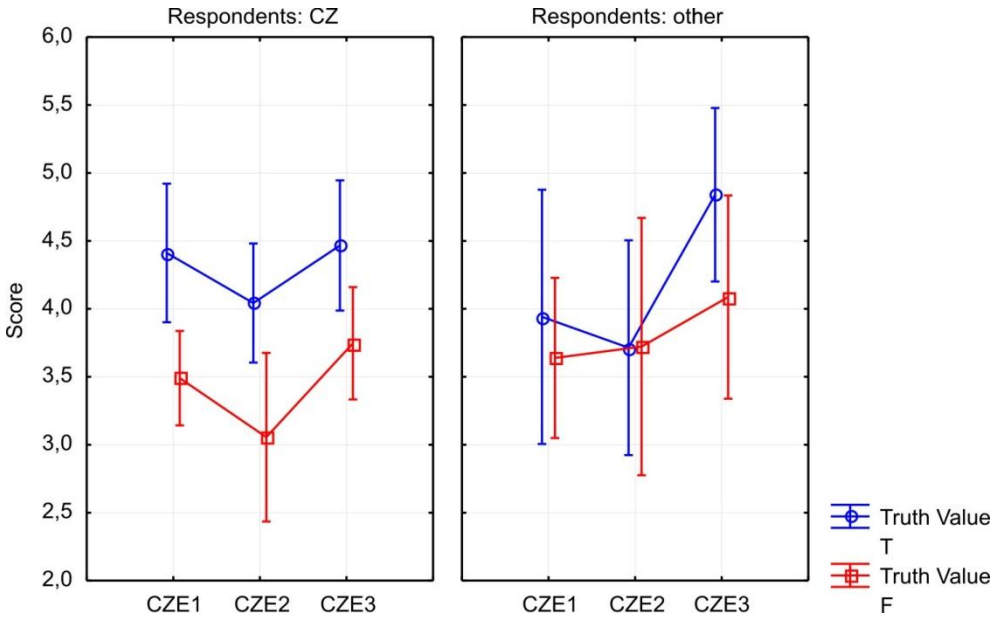

Figure 10. The differences between the individual speakers within the group of Czech speakers, combined with the differences in ratings between the two groups of respondents (left and right) and the information about the actual truth value of the statements.

4.2.2 American speakers

No statement by the American speakers was excluded from the analysis; therefore, there are 10 statements by each speaker (5 true and 5 false every time). Figure 11 presents the data obtained for the American speakers by both groups of respondents. A two-way analysis of variance (factors SPEAKER and TRUTH VALUE) revealed a statistically significant difference F (2, 592) = 14.32, $p < 0.0001$.

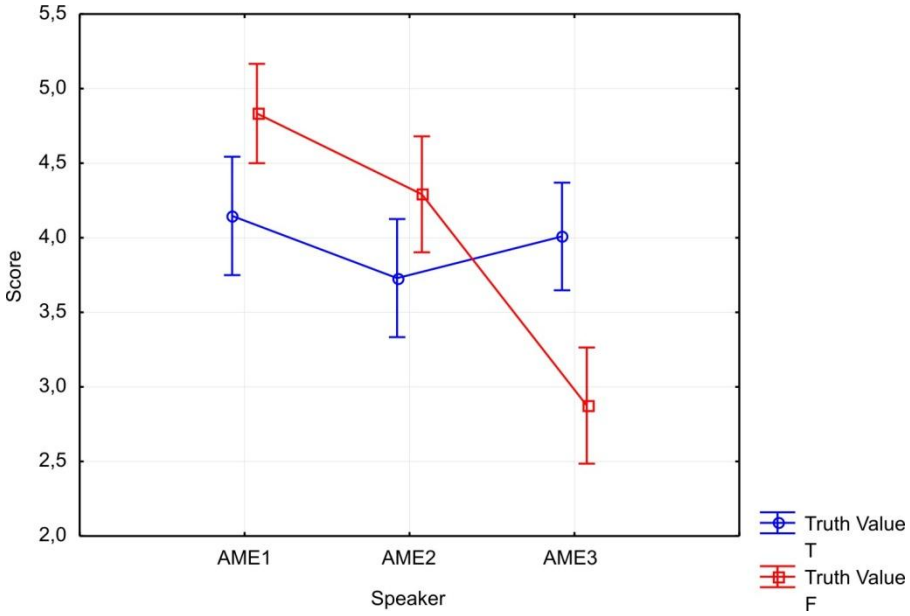

Figure 11. The differences between the individual speakers within the group of American speakers, combined with the information about the actual truth value of the statements.

Figure 11 shows that, unlike for the Czech speakers, the false statements by AME1 and AME2 are perceived as more truthful than their true statements (although the difference is not significant); however, the false statements by AME3 are rated significantly worse than all other statements (post-hoc Tukey HSD: $p < 0.01$ for all comparisons). The issue will be addressed further in the Discussion (chapter 5).

When we look at the differences between the two groups of respondents as presented in Figure 12 below, we can see that while there is a significant difference for the false statements by AME3 among Czech listeners (as observed above), no such difference can be found among the non-Czech respondents. However, as the true statements by AME3 were perceived as comparably true as the true statements by the other speakers, we cannot say that any of the American speakers is perceived as significantly more, resp. less truthful than others and they seem to behave as a group.

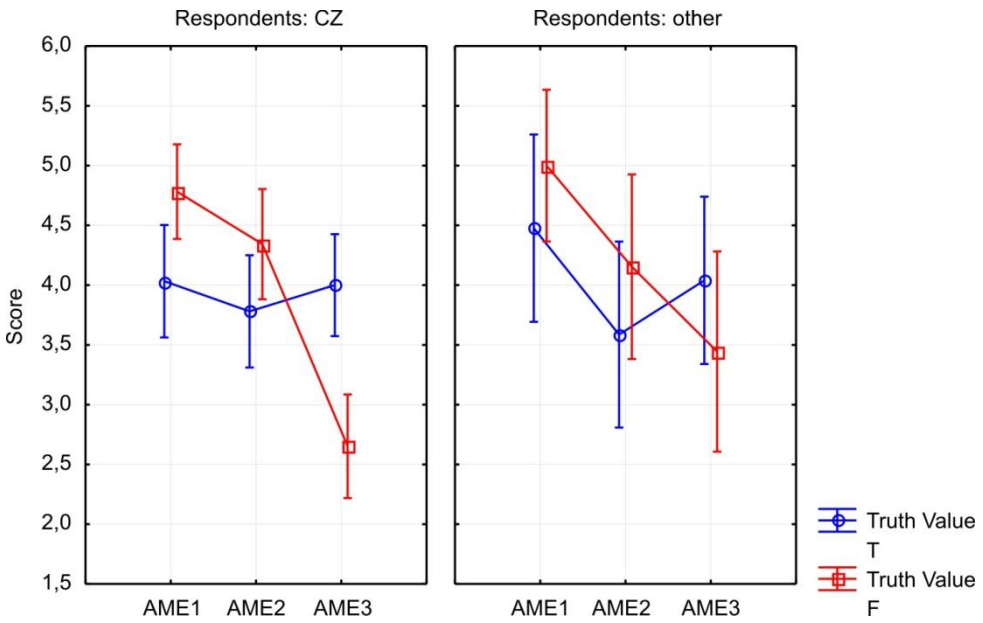

Figure 12. The differences between the individual speakers within the group of American speakers, combined with the differences in ratings between the two groups of respondents (left and right) and the information about the actual truth value of the statements.

4.2.3 British speakers

Two statements by the British speakers were excluded from the analysis – one false statement by BRE3 and one true statement by BRE2 – because less than a half of the answers by the respondents included score ratings (see section 3.4 for the criteria for exclusion). In the analysis we used 10 statements by BRE1 (5 true and 5 false), 9 statements by BRE2 (4 true, 5 false), and 9 statements by BRE3 (5 true and 4 false).

In Figure 13 we can see that the true statements by all of the speakers were rated as slightly more truthful; however, none of the differences is statistically significant.

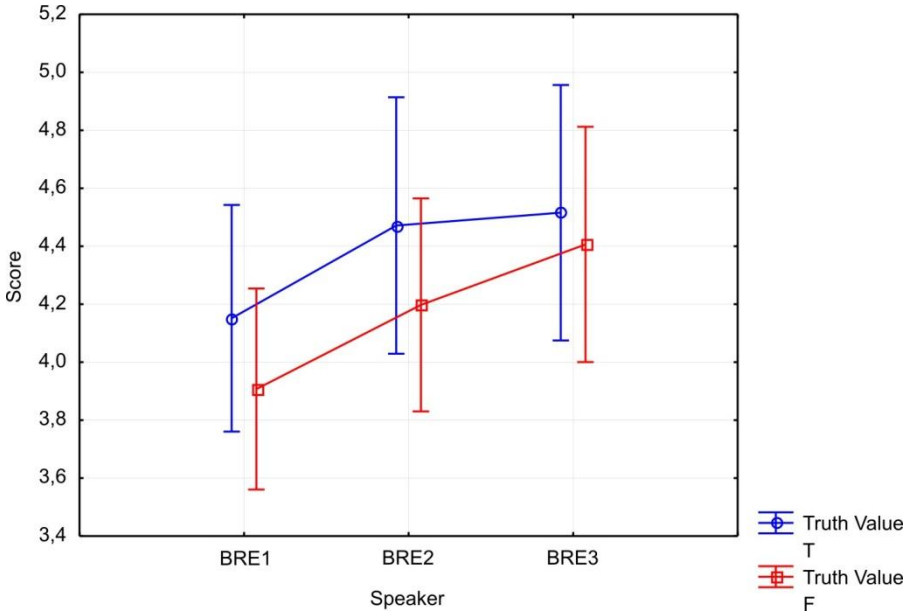

Figure 13. The differences between the individual speakers within the group of British speakers, combined with the information about the actual truth value of the statements.

Figure 14 below shows that there are no significant differences between the evaluations of the two groups of respondents; therefore, we may conclude that the British speakers behave as a group as well.

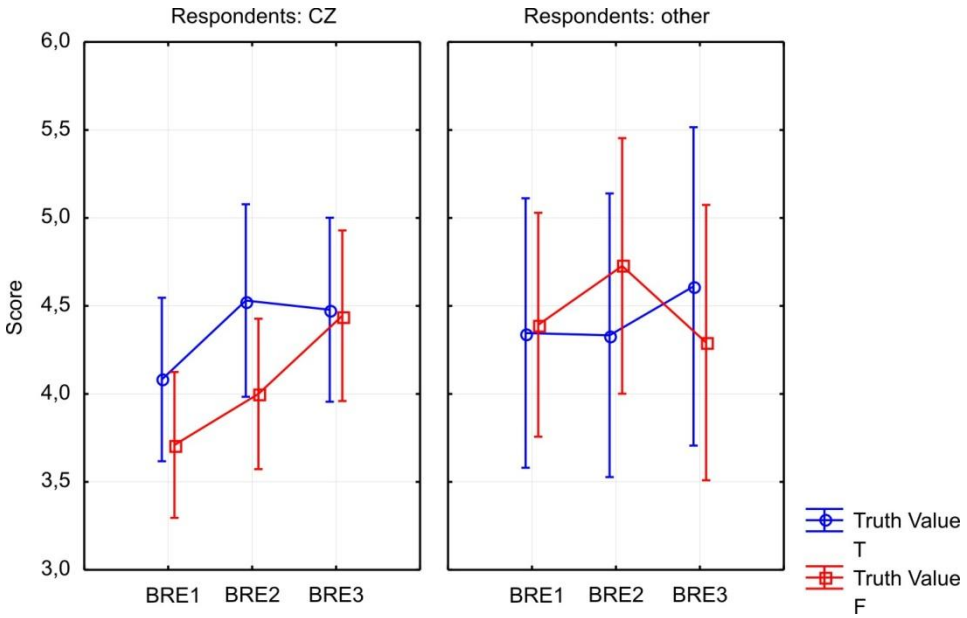

Figure 14. The differences between the individual speakers within the group of British speakers, combined with the differences in ratings between the two groups of respondents (left and right) and the information about the actual truth value of the statements.

4.2.4 Non-native speakers

The group of non-native speakers consisted of one Russian speaker (NNS1), one French speaker (NNS3), and one Egyptian speaker, whose mother tongue was Arabic (NNS2). One false statement by NNS3 was excluded from the analysis; therefore, we used 10 statements by NNS1 (4 true and 6 false statements) and NNS2 (6 true and 4 false), and 9 statements by NNS3 (6 true and 3 false).

A two-way analysis of variance (factors SPEAKER and TRUTH VALUE) applied on the data presented in Figure 15 revealed a significant difference F (2, 546) = 9.12, p < 0.001. Looking at the results, we can observe an interesting situation when the false statements by NNS3 were rated as significantly more truthful than the true statements by the same speaker (post-hoc Tukey HSD: p < 0.05). As the number of true and false statements by ARTH is unbalanced, it is possible that the results were affected by the content of one of the statements – the issue will be addressed in more detail in chapter 5. Apart from that there are no other significant differences in the ratings.

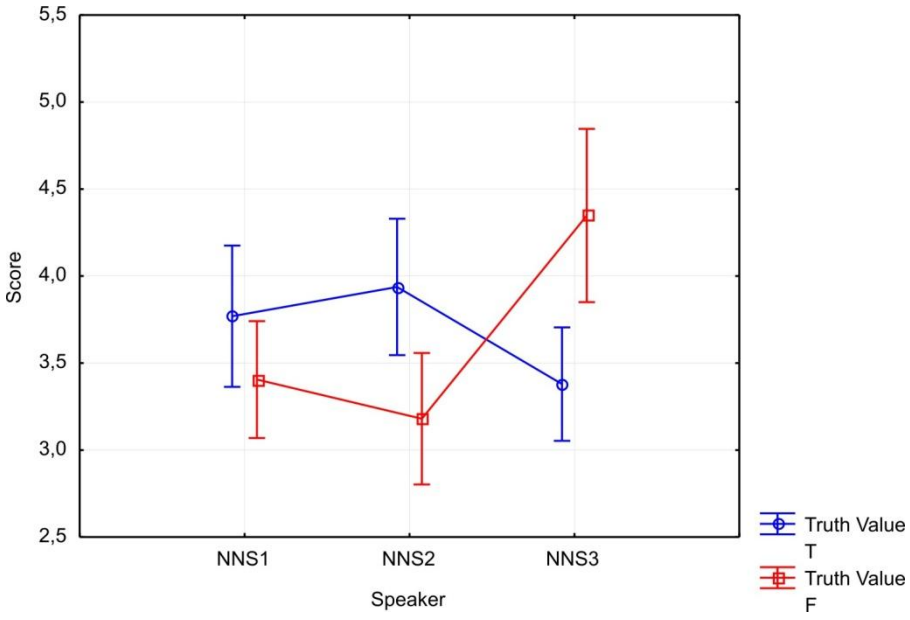

Figure 15. The differences between the individual speakers within the group of other non-native speakers speakers, combined with the information about the actual truth value of the statements.

Figure 16 below presents the differences in evaluations between the two groups of respondents. We can see that while there seems to be a tendency for the false statements by NNS3 to be perceived as more truthful than his true statements; however, a three-way

analysis of variance (factors SPEAKER, RESPONDENT and TRUTH VALUE) revealed no significant difference. As none of the speakers was perceived as significantly more, resp. less credible than the others in the group, we may conclude that the non-native speakers in this study behave as a group, too.

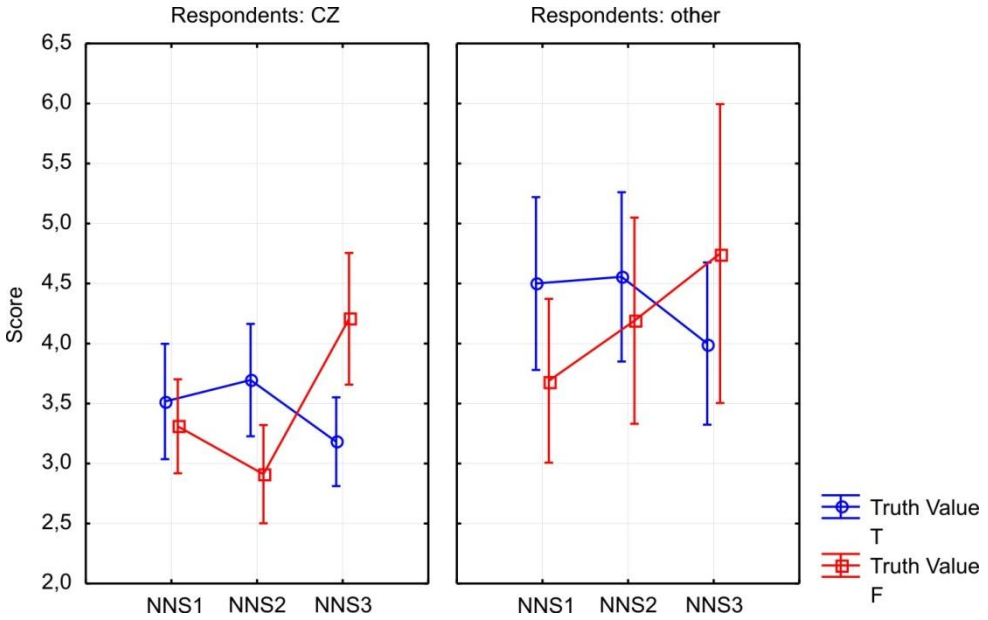

Figure 16. The differences between the individual speakers within the group of other non-native speakers, combined with the differences in ratings between the two groups of respondents (left and right) and the information about the actual truth value of the statements.

To conclude the section about the speaker analysis (4.2), we can say that the results revealed no significant difference for any individual speaker within the groups of speakers. Therefore, the results obtained in section 4.1 were not influenced by behaviour of one individual speaker within any particular group.

4.3 Gender analysis

This section considers whether there are any differences in perceived truthfulness between male and female speakers. All respondents are treated as a group; however, we should be reminded that there are 39 women and 6 men among the participants. In total there were 6 women among the speakers (3 native speakers, 3 non-native) and 6 men (3 native speakers and 3 non-native).

Figure 17 presents the difference between male and female speakers regardless of whether they were native or non-native speakers. A two-way analysis of variance (factors GENDER and TRUTH VALUE) revealed a significant difference (F (1, 2183) = 5.23, p < 0.02). The result is obviously caused by the difference between the true and false statements by the female speakers. In sections 4.2.1 and 4.2.2 we could see that significant differences were revealed between true and false statements by CZE1 and AME3, who are both female speakers; therefore, the result between the true and false statements by female speakers in this section might have been influenced by those two individual speakers.

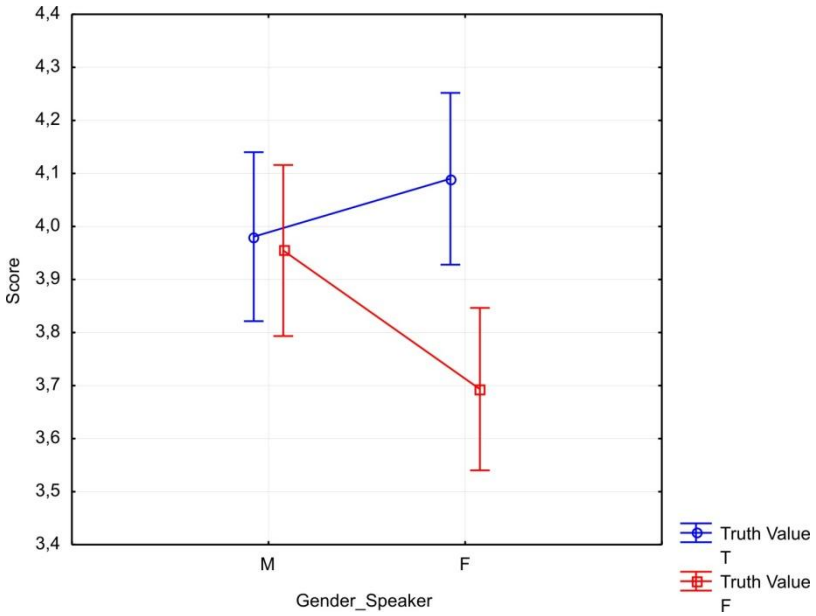

Figure 17. The differences between the true and the false statements by male (M) and female (F) speakers, regardless of their mother tongue.

In Figure 18, the speakers are divided into two groups of native and non-native speakers. As we can see, there are no differences between male and female speakers among the native speakers of English. On the other hand, we can observe a significant difference between the true and the false statements by non-native female speakers (post-hoc Tukey HSD: p < 0.05). Therefore, it seems that the result obtained for Figure 17 was mainly influenced by the difference between the true and the false statements read by non-native female speakers.

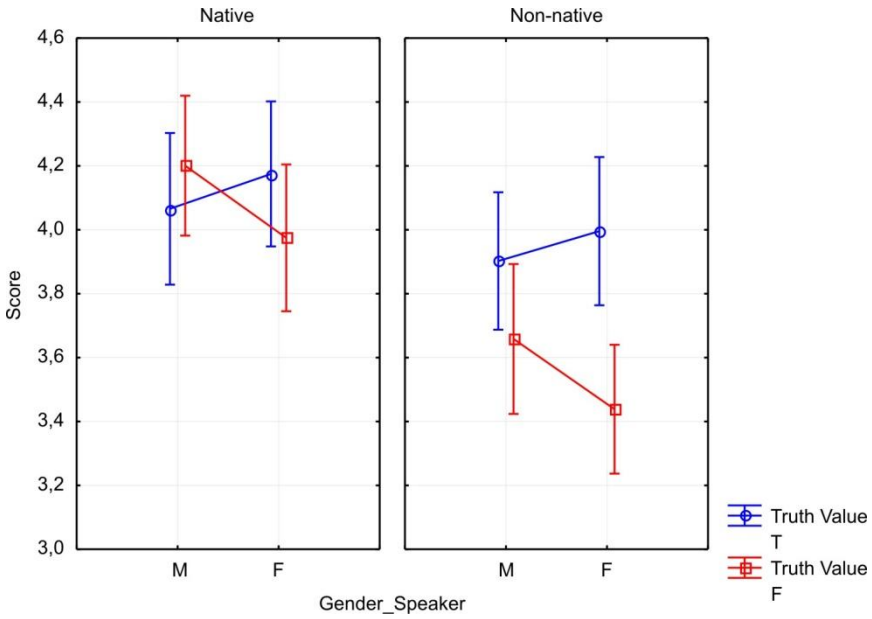

Figure 18. The differences between male (M) and female (F) speakers, combined with the information about whether the speaker is native (left) or non-native (right), and with the information about the actual truth value of the statements.

In the last figure in this section (Figure 19 below) the speakers are divided by gender and by their mother tongue. We can see that while there is little to no difference between male and female speakers among British, American and other non-native speakers, there seems to be a difference between Czech male and female speakers. However, a two-way analysis of variance (factors SPEAKER and GENDER) did not reveal the difference to be statistically significant (F (3, 2179) = 1.78, p = 0.15).

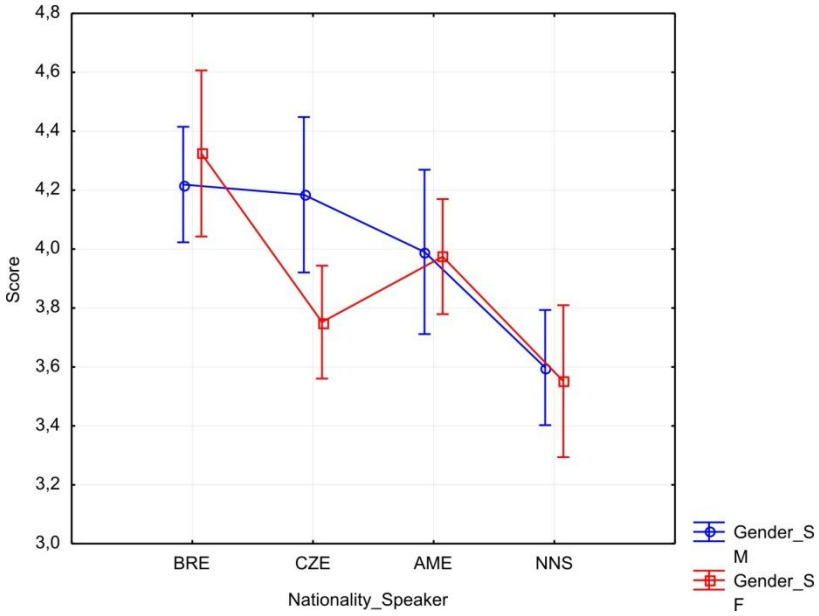

Figure 19. The differences between male (M) and female (F) speakers, combined with the information about the speakers' language groups (British (BRE), Czech (CZE), American (AME), or other non-native (NNS)).

In general, we may conclude that although there were significant differences between true and false statements by female speakers, no significant differences were revealed between male and female speakers. Therefore, among the 12 speakers used in this study, the speaker's gender did not influence the perceived credibility of the speaker.

4.4 Item analysis

As we have each of the statements read by both native and non-native speakers, in the last section of the analysis we compared the evaluations of the statements as read by native and non-native speakers. Four statements (2 true and 2 false) were excluded from the analysis as we only had data available for one version (native, or non-native) of the statement; therefore the analysis is based on comparisons between 56 statements, each read by both a native and a non-native speaker. T-test for repeated measures revealed that speaking with a foreign accent negatively influenced listeners' evaluations (t (55) = 2.95, p < 0.005), which seems to confirm the hypothesis that non-native speakers are perceived as less credible.

5. Discussion

In this chapter we will discuss the significant results which were found in the previous chapter and we will attempt to explain our findings. The first section (5.1) will look in more detail at the excluded items to see if there is a pattern which made some statements difficult to understand. Next, we will look at the results obtained for native and non-native speakers in general and as they were divided into the four groups based on their linguistic background (5.2). The following section (5.3) will be concerned with the statistically significant differences that were obtained for individual speakers among their linguistic group. Section 5.4 will briefly consider the issue of gender and section 5.5 will address the individual item analysis. Lastly, we will discuss some general issues and findings of this study (5.6).

5.1 Excluded items

To begin with, the problem of excluded items will be addressed. As mentioned in chapter 4 above, four items were excluded from the analysis. One of the items, statement 02T by the speaker CZE2, was excluded from the analysis because, after excluding the responses where the listener marked *I know the answer*, there were less than a half of responses available for the item. It is interesting to notice that in the group of listeners who heard the second version of the test, not many people marked this statement as *I know the answer*, although the statement received a relatively high mean assessment score of 5.36. The remaining three items were excluded from the analysis because in more than a half of responses they either received no score from the listeners, or the statement was marked as *I did not understand*.

As some ELF researchers say, native-like accent may cause problems in communication among non-native speakers; therefore we wanted to see whether it could be the case with the three excluded items. First of these was the statement 2FF by the non-native speaker NNS3. The reason why this statement was so often marked as *I did not understand* might be due to the fact that NNS3 is a French speaker and statement 2FF contained the word *Versailles*, which he pronounced as it is in French, which might have confused the listeners who could not associate the sound of the word with its meaning. Moreover, the words *prior* and *asylum* were slightly mispronounced, which might have

added to the confusion caused by *Versailles*. This statement was selected for the test because the mispronunciations were thought to be not as disturbing for the meaning of the statement as they were in the case of other non-native speakers. The speaker NNS3 has a strong French accent in English; therefore, the difficulty with understanding the statement could not have been caused by a native-like accent.

Second item that was excluded from the analysis was the statement 6TT by the British speaker BRE2. BRE2 comes from Southern England and her pronunciation of statement 6TT was not obscured by local pronunciation varieties. However, her speech rate is very fast and the statement was rather short (7 words), which might have led to some listeners not hearing the statement properly. Fast speech rate is often connected with native speech; therefore, we might link the difficulties the listeners had with this item to problems in non-native communication caused by a native accent. However, the remaining nine statements by this speaker did not need to be excluded, although their speech rate is comparable to that of statement 6TT.

The last item that was excluded from the analysis was the statement 15F by the speaker BRE3. The difficulties with this statement might have been caused by the speaker's Northern accent. He pronounced the word *young* as /jʊŋ/ instead of the standard /jʌŋ/, which is a typical feature of English accents used in Northern England. It is possible that the Northern pronunciation could have confused the meaning of the statement.

5.2 Native vs. non-native speakers

To begin the discussion about the effect of accented speech, we will revisit the results obtained by Lev-Ari and Keysar (2010). In their study they observed that native speakers of American English perceived accented speech as less truthful than native speech, regardless of whether the speaker had a mild or heavy accent. In our study we did not differentiate between mild and heavy accented speakers; all non-native speakers in our study were B-level speakers of English whose accent strength was comparable. Our results revealed that not only does a foreign accent negatively influence perceived truthfulness in the eyes of native speakers of English as observed by Lev-Ari and Keysar (2010), but the negative effect extends to non-native speakers of English as well. Such findings bring new arguments to the debate whether it is desirable for non-native learners of English to aim at

attaining native-like pronunciation. While ELF researchers believe that native-like accent is not necessary, if not outright hindering (Jenkins, 2011), for communication among non-native speakers, our results suggest that non-native listeners of English seem to be sensitive to accented English in a similar way to native English listeners. Therefore, intelligibility might not be the only aspect to consider when discussing the use of English in international context.

When looking at the results of the four groups of speakers (Figure 4, section 4.1), we can see that British speakers of English were evaluated as significantly more credible than all non-native speakers, including Czech speakers, and there was also a marginally significant difference between British and American speakers. The obvious partiality among respondents for British-accented English might be caused by the preference of British-accented English in the European education system, which is influenced by the proximity of British speakers and by the abundance of British textbooks and education materials. As British English is connected with education, it might have led the listeners to assume that speakers with British accent are more truthful than other speakers in the present study. In the Czech Republic, American English might be more closely associated with film and music industry, and therefore perceived as less truthful than the prestigious British variety used in education. In the same figure (Figure 4) we can also see that non-native speakers with other than Czech accent of English were perceived as the least truthful. From Figure 7 (section 4.1) it is obvious that the difference was caused by Czech listeners, as the other non-native listeners evaluated the group as actually even more truthful than either Czech or American accent, although the difference is not statistically significant. On the other hand, we could see that Czech respondents evaluated Czech accent of English as comparably truthful to American accent. It is possible that Czech English was easier for them to understand than the other accents of English, which could have influenced the veracity rating. In section 2.3 we raised a question regarding the Czech listeners' evaluation of Czech accented English. We compared a study by McKenzie (2008), who observed that Japanese listeners rated Japanese accented English more favourably, and by Volín, Skarnitzl and Henderson (submitted), who found that Czech listeners evaluated Czech accented English in a harsher way than they did French-accented English. The attitudes of Czech listeners towards Czech-accented English therefore appear to be an issue worth further investigation.

As mentioned above, the group of other non-native speakers was evaluated as the least truthful by Czech listeners. On the other hand, the non-Czech listeners rated the group as comparably truthful to the other groups of Czech and American speakers. As we mentioned in chapter 4, it is important to remember that the group of other non-native listeners consisted of 12 listeners only; therefore, generalizing onto other non-native speakers might be premature. Moreover, one of the non-native speakers in our study was Russian and there were six respondents out of the twelve whose mother tongue was Russian. It is then possible, that the listeners recognized the Russian accent and therefore evaluated it more favourably, as we have observed among Czech listeners rating Czech-accented speech. However, we did not ask the respondents in our study whether they recognized any of the non-native accents, so further research among other non-native speakers would be necessary to confirm or refute the hypothesis.

Another interesting result that we have obtained in chapter 4 concerned the significant difference found between the evaluations of true and false statements by Czech speakers, especially when evaluated by Czech listeners. First of all, it is unlikely that the Czech listeners could hear some signals of deceit on the side of the listeners (if there indeed are any such signals that listeners could be sensitive to) because as we said in section 3.1.1, the speakers did not know in advance whether the statements they were reading were true or not and they did not know the purpose of the study. It was also stressed to the respondents that the speakers did not know the veracity of the statements they were reading. In the next step, we looked at the statements that were read by the Czech speakers to see if the results could have been influenced by one or more items that seemed particularly likely, resp. unlikely to be true. As we have mentioned before, due to problems with item selection by non-native speakers, the number of true and false statements could not always be equal; however, we attempted to keep the ratio balanced. There were 13 true and 16 false statements used in the analysis. There are four items among the false statements that reached an especially low mean assessment score of equal to or below 3 (the respondents were rating on a 7-point Likert scale where 1 meant *definitely false* and 7 meant *definitely true*). When comparing these items to the same statements produced by native speakers, to see whether the statements in general were perceived as very hard to believe, we could see that in two out of four cases the statement produced by a native speaker received an above average mean assessment score. One item

received a very low score as well, and one was excluded from the analysis due to low number of responses (see Table 3 below for details about score ratings).

False Item	NNS score	NS score
03F	2.92	1.58
05F	1.92	5.38
15F	3.00	NA
19F	2.26	4.54

Table 3. Mean assessment scores for the same false statement pronounced by a native (NS) and a non-native (NNS) speaker (NA = the item was excluded from the item analysis due to low number of evaluations).

We performed the same item analysis for true statements by Czech speakers to see if any of the statements was perceived as generally very likely to be believed and therefore could cause the difference in perceived veracity between true and false statements. Only two true statements received a mean assessment score equal to or above 5. Both of these statements read by native speakers received an above average score, although none of them reached over 5 (see Table 4 below).

True Item	NNS score	NS score
11T	5.56	4.58
23T	5.13	4.77

Table 4. Mean assessment scores for the same true statement pronounced by a native (NS) and a non-native (NNS) speaker.

As only one of the statements considered in this analysis (statement 03F) seems to be generally unlikely to believe, it appears improbable that the content of the statements could have affected the veracity rating for statements read by Czech speakers. Therefore, the significant difference that we have observed might have been only a result of a coincidence.

5.3 Speaker analysis

The next issue to be addressed in this chapter concerns the results obtained for individual speakers in relation to their language group.

To begin with, we have obtained a significant difference between the true and the false statements by the Czech speaker CZE1 (see Figure 9). As mentioned in section 4.2.1, there were only three true statements and 7 false statements by CZE1. If we look closely at the content of the statements that she read, we can see that three of the false statements were already mentioned when discussing the differences between true and false statements by Czech speakers, one of the statements being 03F, which was found to be generally less believable as it received low mean assessment score even when read by a native speaker. Although the other two false statements received higher scores when read by a native speaker and therefore could not be considered as influential due to their content, they probably caused the significant difference between the true and the false statements by the speaker CZE1. Listening to the three statements revealed no artefacts present in the recording, nor any mispronunciations that could have influenced their perceived veracity.

Another result that the analysis showed as statistically significant was between the true and the false statements by the American speaker AME3. In her case we can see among the items the statement 03F with an extremely low mean assessment score, and then another statement (1FF) which received a very low mean assessment score. The statement 1FF received a below average score when read by a non-native speaker, although the score did not reach below three; therefore, we may assume that it has generally a lower chance to be believed. The effect of these two items combined together probably caused the significant difference between the true and the false statements by the speaker AME3.

We could observe an interesting effect for the non-native speaker NNS3, where his false statements were evaluated as significantly more truthful than the true statements that he read. After excluding one false statement from the analysis, there were only 3 false statements by NNS3 left, all of which received a slightly above average mean assessment score (which they did when read by native speakers as well). The issue seems to be that 2 true statements read by NNS3 received a mean assessment score below 3. Comparing these two statements with their native counterparts, it appears that one of the statements (7TT)

received a comparably low mean assessment score, while the other statement was evaluated as slightly above average (see Table 5). It seems that these two items in particular were the reason for the discrepancy between the true and the false statements by NNS3.

True Item	NNS score	NS score
04T	2.31	4.50
7TT	2.90	2.66

Table 5. Mean assessment scores for the same true statement pronounced by a native (NS) and a non-native (NNS) speaker.

Another result which could be found interesting was one that was actually not discovered, although it would not be surprising to find it: There was no significant difference among the British speakers of English. As said in section 3.1.1, two of the British speakers come from Northern England (BRE1 and BRE3) and one speaker comes from the South (BRE2). In the theoretical background, sections 2.1.4 and 2.1.5, it was mentioned that speakers with non-standard native accents are very often perceived by native speakers as less intelligent or less educated; therefore, it would be reasonable to assume that the Northern speakers could be perceived as less truthful when rated by native speakers of English. However, no such result was revealed by our data where the speakers were evaluated by non-native listeners, although there were signals of a Northern accent in the speech, such as pronouncing /ʊ/ instead of /ʌ/ in words like *young*, *pump* or *jump* which appeared in the test. This supports the 'social connotations' hypothesis as proposed by Trudgill (1983) which says that the positive or negative attitudes towards accents are the result of connotations that people have of the speakers who use the particular accents. These connotations are less likely to affect non-native listeners who are not as familiar with such associations. It seems that the non-native listeners in our study were not familiar with social connotations which are common in Britain, and thus the Northern accent did not influence their evaluations of truthfulness. However, as the American speakers were rated with marginal significance as less truthful than British speakers, it seems that non-native listeners, consciously or not, form an opinion about the speaker's accent, which is an issue that could be explored further with a wider range of accents and speakers.

5.4 Gender analysis

The gender analysis in chapter 4 revealed a significant difference between the true and the false statements by non-native female speakers. As we have discussed above already, such difference was found for the female speaker CZE1 and consulting the mean assessment scores of other non-native female speakers it seems most likely that the results were mostly affected by the difference found for CZE1, combined with relatively low scores of false statements and above average scores of true statements by the Czech speaker CZE2, which are not large enough to be found statistically significant, however, in addition with the statistically significant difference found for CZE1, they could have resulted in the statistically significant difference found between the true and the false statements by non-native female speakers.

5.5 Item analysis

The last section of the results (4.4) was concerned with item analysis, comparing the same statement as said by a native speaker and a non-native speaker. The fact that the difference was found significant in favour of the native speakers only supports the hypothesis that speaking with a foreign accent negatively influences perceived credibility of the speaker. As we could see in the discussion part (sections 5.2 and 5.3), some statements seemed to have an inherent potential to be considered true or false (e.g. statements 03F, 7TT, 1FF), on the other hand, there were many statements that were perceived as false when read by a non-native speaker but received high mean assessment scores when read by native speakers. While we can find several statements whose difference between the native-speaker mean assessment score and the non-native-speaker mean assessment score reached over 2 points in favour of the native speaker (the respondents were rating veracity on a 7-point Likert scale), the difference never reached above 1 point in favour of the non-native speaker. This is indeed a strong argument in support of the negative influence of a foreign accent on perceived credibility.

Looking at the individual items where the large differences were found, we could see that the differences were between different pairs of speakers; therefore, it was not caused by one native speaker who would sound more truthful compared to other non-native speakers.

5.6 General discussion

To conclude the discussion, the most important result of our study is that non-native speakers of English seem to be sensitive to foreign accented speech, which influences their judgement about truthfulness of the statements different speakers were reading. No statistically significant difference was found for one individual speaker within their language groups, which means that the results were not influenced by a non-standard behaviour of one individual speaker, but rather they behaved as groups. This supports the hypothesis that it was indeed the accent that influenced the listeners' judgement.

Lev-Ari and Keysar (2010) mention in their study a possible issue of having people with different mother tongue among the non-native speakers and they raise the possibility that the listeners could have identified the accent and then make prejudiced choices based on the attribution. We have attempted to avoid a similar situation by choosing Czech non-native speakers as one of the tested groups, assuming that Czech listeners would not be prejudiced against speakers whom they would identify as coming from the same cultural background as the listeners themselves (if they actually managed to identify the accent). We have also used a group of other non-native speakers in the experiment to see if the two groups of non-native speakers would behave differently – which we have found they did and further research could attempt to find patterns in the evaluation of non-native speakers from different cultural and linguistic backgrounds. Nevertheless, even Czech speakers were considered to be significantly less truthful than native British speakers; therefore it appears that accent indeed does play a role in assessing veracity of the statements.

It is also important to mention that research which was inspired by Lev-Ari and Keysar's (2010) study did not reveal a negative influence of foreign accent on veracity assessment (e.g. De Meo et al. (2011), Souza & Markman (2013)). Instead they argue for the influence of suprasegmental features such as silent pauses or tonal range. The speakers in our study obviously differ in their speech rate, intonation patterns, voice colour and other features and further analysis of our data might be necessary to see whether our results could have been influenced by other features than just a foreign accent.

6. Conclusion

The present study was inspired and is directly related to the study 'Why don't we believe non-native speakers? The influence of accent on credibility' by Lev-Ari and Keysar (2010). The results in their study revealed a significant bias against non-native speakers as perceived by native speakers of English. As English is becoming the most important means of communication in today's globalized world and, as some researchers say (e.g. Jenkins, 2009), very often native speakers are not even present in international conversations where English is spoken, it is important to study the attitudes towards foreign accented English as perceived by non-native listeners as well. Because the implications suggested by Lev-Ari and Keysar's (2010) results may have far-reaching consequences for non-native speakers, we have decided to replicate their study and extend the findings on non-native listeners.

In the study we used the same set of statements and similar settings for the experiment to those that were used by Lev-Ari and Keysar (2010). Although we could not exactly replicate the method of recording the participants to make certain that the listeners understood that the speakers were only messengers, we attempted to emphasize the fact during the instruction part of the experiment. The participants saw a list of statements and were told that the speakers were only reading a similar list with statements and the respondents were asked to focus on the content of the statements they were going to hear. During the instruction part we never mentioned that they were going to hear native and non-native speakers or anything that could cue the listeners to the purpose of the study.

The results of our study revealed that non-native listeners were significantly less likely to believe a statement which was produced by a non-native speaker than by a native speaker. As Lev-Ari and Keysar (2010) mentioned in their study, such findings may have important implications for non-native job seekers, eye-witnesses or news reporters. Up until now, this finding was thought to be relevant only for non-native speakers in countries where English is spoken as a native language. Our results extend the possible application on non-native speakers who might be seeking jobs in other countries where English is not a native language but might be a language of communication.

6.1 Research questions

In section 2.3 we introduced four research questions that we attempted to answer through the experiment. In this section we will revisit the questions and summarize the answers that we have obtained.

1. *Does foreign accent have a negative effect on credibility as perceived by non-native listeners?*

The results of our experiment revealed a significant difference between the perceived veracity of statements read by native and non-native speakers in favour of the native speakers, which suggests that non-native speakers indeed believe foreign-accented English less.

2. *Is there any difference in perceived credibility between the four groups of speakers?*

Yes, we have found that the four groups of speakers were evaluated differently. The British speakers were rated as the most trustful among both Czech and other non-native listeners. On the other hand, non-native speakers with other than Czech accent in the test were perceived as the least truthful for the Czech listeners. Czech and American speakers received comparable evaluations from both groups of respondents.

3. *Is there any difference in perceived credibility between the two groups of native speakers (British and American) or do they behave as a group?*

There is a marginally significant difference in perceived truthfulness between the British and the American speakers. The British speakers were perceived as more truthful than American speakers by both groups of listeners (Czech listeners and other non-native listeners).

4. *Do Czech listeners exhibit a bias, positive or negative, for Czech-accented English as compared to other non-native accents?*

Czech listeners in our study exhibited a positive bias for Czech-accented English as compared to other non-native accents. However, Czech-accented English was still perceived as significantly less truthful than native British accent.

6.2 Further research

Lev-Ari and Keysar (2010) conducted a follow-up experiment where they tested whether the listeners would rate the statements differently if they were told about the role of accent in advance. They found that while native listeners could correct for the mildly accented speech, the heavily accented speech was still perceived as less truthful. Further research could explore whether the awareness of the issue of the foreign accent would influence the ratings of non-native listeners.

Furthermore, the listeners in our study exhibited a positive bias for British-accented English (regardless of whether the accent was Northern or Southern) as compared to American English. It would be interesting to investigate the different perceptions that non-native listeners seem to associate with different accents of English. Moreover, the Czech and the other non-native listeners in our study rated the group of non-native speakers differently – the non-native speakers were evaluated much worse by Czech listeners. However, in our study there were only 12 non-native listeners who were not Czech; therefore, we cannot generalize the results. Further research could explore the different behaviour of different groups of non-native listeners towards different groups of non-native speakers. Lev-Ari and Keysar (2010) observed different attitudes towards mild and heavy accent, especially in their second experiment where the listeners were made aware of the difficulties connected with accented speech. Further research could investigate whether the degree of foreign accent would influence non-native respondents in the same way it did native listeners.

Lastly, some of the research that was inspired by Lev-Ari and Keysar's (2010) study could not replicate their findings and instead they suggest that perceived credibility of non-native speakers might be influenced by other suprasegmental features. Further

analysis of our data could focus on such suprasegmental features and investigate whether any connection could be made between them and the decreased credibility of the statements. As we have mentioned in chapter 5 already, for example the speech rate of the speakers in our study was different and controlled manipulations of speech rate could be used to investigate whether it contributes to perceived credibility of the speaker. Moreover, in section 5.1 we hypothesized that one of the native speakers of British English (BRE2) might have received a low number of answers for one item due to her fast speech rate, and further experiments could reveal whether lowering her speech rate would increase the number of responses.

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Appendix

Appendix A: This is an example of what the answer sheet looked like. The example answer sheet is resized so that it fits the size requirements of the MA thesis.

	definitely false						definitely true	I know the answer	I did not understand
A	– – –	– –	–	0	+	+ +	+ + +		
B	– – –	– –	–	0	+	+ +	+ + +		
1	– – –	– –	–	0	+	+ +	+ + +		
2	– – –	– –	–	0	+	+ +	+ + +		
3	– – –	– –	–	0	+	+ +	+ + +		
4	– – –	– –	–	0	+	+ +	+ + +		
5	– – –	– –	–	0	+	+ +	+ + +		
6	– – –	– –	–	0	+	+ +	+ + +		
7	– – –	– –	–	0	+	+ +	+ + +		
8	– – –	– –	–	0	+	+ +	+ + +		
9	– – –	– –	–	0	+	+ +	+ + +		
10	– – –	– –	–	0	+	+ +	+ + +		
11	– – –	– –	–	0	+	+ +	+ + +		
12	– – –	– –	–	0	+	+ +	+ + +		
13	– – –	– –	–	0	+	+ +	+ + +		
14	– – –	– –	–	0	+	+ +	+ + +		
15	– – –	– –	–	0	+	+ +	+ + +		
16	– – –	– –	–	0	+	+ +	+ + +		
17	– – –	– –	–	0	+	+ +	+ + +		
18	– – –	– –	–	0	+	+ +	+ + +		
19	– – –	– –	–	0	+	+ +	+ + +		
20	– – –	– –	–	0	+	+ +	+ + +		
21	– – –	– –	–	0	+	+ +	+ + +		
22	– – –	– –	–	0	+	+ +	+ + +		
23	– – –	– –	–	0	+	+ +	+ + +		
24	– – –	– –	–	0	+	+ +	+ + +		
25	– – –	– –	–	0	+	+ +	+ + +		

	definitely false						definitely true	I know the answer	I did not understand
26	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
27	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
28	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
29	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
30	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
31	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
32	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
33	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
34	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
35	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
36	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
37	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
38	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
39	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
40	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
41	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
42	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
43	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
44	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
45	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
46	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
47	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
48	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
49	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		
50	⌜	⌜	⌜	⌜	⌜	⌜	⌜		
	− − −	− −	−	0	+	+ +	+ + +		

	definitely false						definitely true	I know the answer	I did not understand
51	– – –	– –	–	0	+	+ +	+ + +		
52	– – –	– –	–	0	+	+ +	+ + +		
53	– – –	– –	–	0	+	+ +	+ + +		
54	– – –	– –	–	0	+	+ +	+ + +		
55	– – –	– –	–	0	+	+ +	+ + +		
56	– – –	– –	–	0	+	+ +	+ + +		
57	– – –	– –	–	0	+	+ +	+ + +		
58	– – –	– –	–	0	+	+ +	+ + +		
59	– – –	– –	–	0	+	+ +	+ + +		
60	– – –	– –	–	0	+	+ +	+ + +		

Age: _____

Gender: M - F

Mother tongue: _____

What other languages do you speak? _____

What is your study programme? _____